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TABLE OF CONTENTS

Comprehensive Attack on Pulmonary Tuberculosis Sir ARTHUR MACNALTY, M.D. 599
Acceleration of Muscular Effort by Nicotinamide I. M. FRANKAU, M.D. 601
Anxiety States in the Navy G. V. STEPHENSON, M.B., and KENNETH CAMERON, M.B. 603
Evaluation of Nitrous Oxide Anaesthesia R. BLAIR GOULD, M.B. 607
March Fracture of Metatarsal Bones H. H. FOURACRE BARNS, F.R.C.S. 608

MEDICAL MEMORANDA

Prolonged Treatment of Cardiac Failure by Mercurial Diuretics. C. M. MCINTYRE, M.B. 609

GENERAL ARTICLES AND NEWS

Eight Years' Experience of a Miniature State Medical Service. E. THOMSON, M.B., J. HAMILTON, M.B., M. CURRAN, M.B., W. POOLE, M.B., and J. ORR, M.B. 616
Undergraduate Education in Psychiatry.....617
WAR CONDITIONS AND MENTAL HEALTH 618
THE SERVICES 627
UNIVERSITIES AND COLLEGES 626
MEDICAL NOTES IN PARLIAMENT 627
MEDICAL NEWS 628

LETTERS AND ANSWERS

Chronic Infective Sinusitis—Physical Training and Female Fertility—Another Rh Question—Progressive Muscular Atrophy—Inhibiting Secretion of HCl—Unconscious after Head Injury—Family History of Encephalitis Lethargica—Treatment of Vulval Warts—Myopic Schoolboy—Intractable "Athlete's Foot"—Epidermophytosis—Paget's Disease—Tobacco Habit—Treatment of Sweating Feet—Recurrent Erysipelas—Parodontal Disease 630–2

Epidemiology Section.....629

LEADING ARTICLES

Psychiatry and Social Medicine.....612
Chemotherapy or Serum for Scarlet Fever?.....613

ANNOTATIONS

Treatment of Experimental Hypertension 614
Alcohol and Avitaminosis 614
Blood Irradiation Therapy 615
Dicumarol and Salicylates 615

OBITUARY

F. J. Poynton, M.D., F.R.C.P. 623
C. J. Macalister, M.D., F.R.C.P. 624
David St. H. Horgan, M.B. 624
K. W. Lewis, M.B. 624
H. H. Stiff, M.B. 625
J. O. Priestley, M.R.C.S. 625
F. W. Cock, M.D., F.S.A. 625
George Morgan, F.R.C.S.Ed. 625
G. H. Cowen, M.S., F.R.C.S. 625
Henry Bedingfield, D.S.O., M.D. 625
W. J. Harrison, M.B. 625
Rayner Batten, M.D. 626
R. Austin Freeman, M.R.C.S. 626

SUPPLEMENT

Annual Panel Conference.....*83*
FUTURE MEDICAL SERVICES: COMMUNIST VIEW *87*
CORRESPONDENCE *87*
H.M. FORCES APPOINTMENTS *88*
POSTGRADUATE NEWS *88*

CORRESPONDENCE

Are Hospital Diets Adequate? C. G. DOUGLAS, M.D., F.R.S., Sir R. MCCARRISON, M.D., R. A. PETERS, M.D., F.R.S. ..619
Mind and Stomach. Sir HENRY BASHFORD, M.D. 619
Sterility and Impaired Fertility. A. M. CARR-SAUNDERS, M.A., and others 619
Symptoms of Vitamin B Deficiency. G. H. H. BENHAM, M.B. 619
Wartime Diet for Peptic Ulcer. J. B. WRATHALL ROWE, M.B. 619
Psychiatry at the Cross-roads. J. S. HORSLEY, M.R.C.S. 620
Iodine Deficiency. W. MITCHELL STEVENS, M.D. 620
Wartime Day Nurseries. MARJORIE BACK, M.D. 620
X-ray Diagnosis of Phthisis in Symptomless Adolescents. E. WEATHERHEAD, M.B. 621
Treatment of Lupus Vulgaris. ROBERT AITKEN, M.D. 621
Psychology and the Common Cold. E. H. KITCHING, M.D.; W. B. ORME, M.R.C.S.; F. A. PICKWORTH, M.B.; R. M. LADELL, M.B. 621
Atmospheric Pollution with Cement Dust. D. W. STANDLEY, M.B. 622
Vincent's Infection during Arsenical Treatment. R. C. WOFINDEN, M.D. ..622
Treatment of Chronic Rheumatism. L. SCHMIDT, M.D. 622
"Opponents of the Medical Profession." A. RUGG-GUNN, F.R.C.S. 623
A "Charter of Health." J. LÖWY, M.D. 623

REVIEWS

A Textbook of Midwifery.....610
Authority in Medicine.....611
Radiology in 1942.....611
Notes on Books.....611

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 13 1943

THE COMPREHENSIVE ATTACK ON PULMONARY TUBERCULOSIS*

BY

Sir ARTHUR S. MacNALTY, K.C.B., M.D., F.R.C.P., F.R.C.S.

A Vice-President of Papworth Village Settlement; A Member of the Institution of King Edward VII Sanatorium

" When good men die their goodness does not perish
But lives though they are gone,"

wrote Euripides. We have come together to-day to do honour to one of the world's benefactors, to pay a tribute to a man who was great and single-hearted, who was not content with deploring the sad lot of the consumptive but used his scientific and intellectual gifts to find a solution to the problem, and, in spite of much misunderstanding and even veiled opposition, succeeded by the very force of his character and genius.

Before turning to the ways in which the social and economic aspects of the tuberculosis problem can be approached I will devote the first part of this lecture to a consideration of certain principles which should guide the physician in the treatment of pulmonary tuberculosis. They are important and fundamental ones. They have been inherent in the practice of famous institutions, like the Brompton Hospital for Consumption and King Edward VII Sanatorium at Midhurst, for many years with great success. But I regret to add they are often either neglected or are unknown to many entrusted with the treatment of consumptives. We have not enough Professors of Tuberculosis in our universities or lecturers on that subject in our medical schools to teach the lessons of clinical experience to medical students.

Residential Treatment of the Consumptive

A considerable degree of confusion still exists as to the appropriate use of hospitals and sanatoria and their interdependence in the treatment of persons suffering from pulmonary tuberculosis. It is highly important to realize, first, that there is a great distinction between hospital and sanatorium treatment, and, secondly, that, while this distinction obtains, the two forms of treatment are complementary to one another. A patient after a period of hospital treatment may become suitable for sanatorium treatment; a patient in the course of sanatorium treatment may regress and require hospital treatment. This right use of residential treatment is so frequently ignored, with disastrous results to the patient, that it cannot too often be reiterated. Many local authorities, and even some of their medical advisers, are under the impression that all persons suffering from pulmonary tuberculosis, if diagnosed early enough, will recover with prompt sanatorium treatment. If discovered, many early cases do obtain arrest in this way, although there is a florid type of pulmonary tuberculosis that proceeds to a fatal issue however early the diagnosis and however skilled the treatment; whilst other patients under sanatorium treatment pass into the intermediate or advanced type of the disease and stand in need of hospital treatment.

But the early case is a *rara avis*, especially in a working-man who cannot afford to be one. As Varrier-Jones, with whom I often discussed this problem, wrote:

> " Hitherto few, if any, so-called ' early ' cases have been truly early, and the sooner this depressing fact obtains general recognition the sooner we shall begin to make some progress in the sphere of prophylaxis."

Great hopes are built now upon routine mass radiography for the diagnosis of the early case. Far be it from me to belittle these hopes. In skilled and expert hands the results obtained by Dudley and Fitzpatrick, by Surg. Capt. W. D. W. Brooks, and by Wing Commander Trail already testify to the success of this method in detecting previously unsuspected cases. Trail observed, in the first of these lectures, that some 25% more cases are found in the early stage of mass radiography than by the present civilian methods of diagnosis. But in the use of *x* rays for diagnosis Varrier-Jones gave a word of caution which is especially timely to-day. This is what he said:

> " When we take an *x*-ray film we are filled with wonder at the complications of nodes and shadows, not sufficiently realizing that what we are gazing at is the picture of past battles, filled-in trenches, exploded mine-craters, and the like. What we imagine we see, but do not, is the advancing army of disease. . . . We have interpreted the *x*-ray film wrongly. Instead of using it as an index of equilibrium (which as a rule is impossible) we have used it as a picture of the present battle, whereas it is but the shadow of past conflicts."

X rays, then, are a valuable adjunct, but only an adjunct, to the diagnosis of active pulmonary tuberculosis. They do not provide a rule-of-thumb diagnosis or indicate the appropriate treatment. The physician and the radiologist must work together in this matter. It should also be remembered that many extensive and intermediate cases of pulmonary tuberculosis, and even cases classed as advanced, after efficient hospital treatment, often combined with collapse therapy and surgical measures, may become suitable for sanatorium treatment and attain complete quiescence of their disease. The unfortunate heresy that all cases of pulmonary tuberculosis are suitable for sanatorium treatment is only gradually disappearing from our midst.

Tuberculosis is a protean disease. Its manifestations have to be studied in the individual patient, and that study must be based upon clinical experience. The treatment given must be adapted to the present needs of the individual patient. A stereotyped treatment which automatically puts patients with early physical signs into sanatoria and others into hospital meets with inevitable failure. No man has appreciated this teaching more than Varrier-Jones. He applied it with marked success to the treatment of patients at Papworth.

Selection of Patients for Different Forms of Treatment

From an examination of a number of patients suffering from pulmonary tuberculosis the physician finds that they can be relegated to the following categories:

At the time the disease is recognized a certain proportion of patients are suitable for sanatorium treatment forthwith (i.e., in the strict and limited sense previously mentioned). A second, and larger, proportion of patients will require a period of initial treatment either in a tuberculosis hospital or in the nursing block of a sanatorium before they are suitable for strict sanatorium treatment involving occupational therapy. The rest of febrile patients should be " absolute," not only in name but in practice. A third proportion of patients are suitable for treatment in a tuberculosis hospital. Some of them are unlikely to derive benefit in the future from strict sanatorium treatment; but after collapse therapy or surgical treatment—e.g., thoracoplasty—many will have their lives

* Being the Second Varrier-Jones Memorial Lecture, delivered at No. 10 Canadian General Hospital to members of the Royal Canadian Army Medical Corps on Aug. 26, 1943.

prolonged and be able to work under sheltered conditions. In the remaining group of patients the disease at the time of examination is too advanced and extensive for sanatorium treatment; palliative treatment, either in the tuberculosis hospital or at home, is required.

In most cases it is desirable to keep the patient for a week or so in an observation ward before deciding on the form of treatment most suitable for his individual case.

The principles which guide the physician in the treatment of pulmonary tuberculosis may be summarized as follows:

1. The diagnosis of pulmonary tuberculosis at the earliest possible stage, as well as the careful examination, including *x*-ray, of all contacts, especially adolescents and young adults.
2. A proper selection of patients for sanatorium treatment.
3. Full co-ordination between the tuberculosis officer or medical practitioner and the medical superintendent of the hospital-sanatorium.
4. Correct co-ordination of hospital and sanatorium treatment.
5. Study of the individual patient.
6. A proper hospital and sanatorium regime.
7. Prolonged duration of stay in the sanatorium.
8. The goal to be aimed at is the discharge of the patient with the disease quiescent and in a fit condition to resume an occupation.

To these principles should be added the maintenance of the ex-sanatorium patient, in whom the disease has become quiescent, under medical supervision for at least five years, the injunction to seek medical advice at the first symptom of renewed ill-health, residence in a village settlement, or, if this is impracticable, suitable after-care provision by the local authority.

If these principles were generally practised throughout the country the sanatorium results of every local authority would be as favourable as those already obtained in the sanatoria of the more progressive authorities.

The Principles of Papworth

I have dwelt at some length on the principles of right treatment because they are inseparable from the work of him whom we honour to-day. Efficient treatment of the consumptive is the core of Papworth. This medical aspect of the village settlement is too often overshadowed by its industrial triumphs. Yet the two aspects are inseparable. As Varrier-Jones said:

> "Papworth has proved quite definitely that when the teaching of the medical profession as to tuberculosis can be put into operation the results are exactly those which were anticipated. The progress of disease can be 'arrested' and the condition of 'arrest' can be almost indefinitely prolonged."

We know that with efficient modern treatment, in favourable cases, the consumptive can obtain arrest of his disease and eventually return to play his part in the workaday world. There are many men and women to-day doing useful work who have at one time suffered from active pulmonary tuberculosis. In their case the conditions were favourable, and they survived the critical five years that follow arrest of the disease. But this satisfactory condition of affairs does not obtain with the vast majority of "arrested" patients who return as damaged lives to compete with healthy labour. "The economic world will not support an unearning unit." The consumptive man's resistance power breaks down under the strain. Often he has given hostages to fortune and has to support a wife and family. Even as the working-man cannot afford to become an early case of tuberculosis, so in the same way he struggles to carry on when the strain of occupation has caused a recrudescence of his disease. Then, inevitably, he is forced to give up the struggle. But when he comes once more under medical treatment the tubercle bacillus has made headway and there is far less chance of recovery.

As tuberculosis officer in Cambridge at the beginning of the last war, Varrier-Jones pondered on these disheartening results and sought a solution. He found it in the scheme which he started at Bourn in 1916. It began in a small way. On the site a few shelters were erected and the patients installed. In the house resided a matron, a nurse, and a cook. Before Varrier-Jones died in 1941 he saw this nucleus develop into a great institution at Papworth with 1,000 acres of land, administrative blocks, hospital blocks provided with every facility for modern treatment, a large sanatorium section, laboratories and research institute, a village settlement of nearly two hundred cottages, hostels for men and women, and factories fully equipped with labour-saving machinery and operated on mass-production lines. This means an incentive in life to the patient and an economic future.

Here, then, at Papworth is embodied the secret of successful treatment of tuberculosis. Of primary importance is the fact that the consumptive remains under continuous supervision—medical, psychological, and social. He passes through the stages of hospital and sanatorium treatment and is provided with occupation suited to his state of health. When afebrile he works at a trade, for which he receives the trade union rate of wages. He resides in a hostel or, if married, in the village settlement with his wife and family. If at any time his health relapses he is sure of prompt and expert treatment in the institution.

Papworth and the Prevention of Tuberculosis

Hitherto we have considered the work at Papworth from the curative and remedial standpoints. Varrier-Jones proved that tuberculosis colonies also play an important part in prevention of the disease. Let me quote his own words on the subject:

> "The fatal 'mass' dose, so common yet so unnecessary, need not occur in village settlement conditions. So far it has been avoided at Papworth. Our experience in this respect seems to show that a village settlement can cut the vicious circle of infection which spreads the disease all through whole families. What does this imply? If anything, it means that here we have a means of reducing tuberculosis to the incidence level of smallpox, and it means that, in the long run, it is far cheaper to establish a family in a settlement than to send each of its members, one after another, from sanatoria to their homes to spread infection. There is a mass of evidence to prove this. On the other hand, patients discharged to a village settlement need not spread infection. These facts alone justify village settlements on humane as well as financial grounds, but it is most difficult to make people understand and admit this."

Varrier-Jones had the question of contact examination in mind from the beginning of his project. He was quick to realize that in the village settlement he had a unique opportunity for studying this problem. The settlers and their families could be kept under continuous medical observation. *X* rays and laboratory technique were available to supplement the findings of the expert clinician.

The organized work began as far back as 1921. Under Sir Pendrill's direction it was entrusted to Dr. L. B. Stott. In my visits to Papworth I have been able to see the progress of this work, at which Dr. Stott laboured with unremitting zeal and energy over a period of many years. Before his death Varrier-Jones arranged that Dr. Brieger should examine and collate the vast material which Dr. Stott had prepared. I must not anticipate the detailed results of this prolonged investigation, which are shortly to be published. Preliminary communications have appeared, and it has already been stated that none of the children born in Papworth village (and some have now come of age) has, while a member of the community, contracted tuberculosis of the lungs, glands, bones, or joints or, indeed, in any known clinical form. There has been no case of tuberculous meningitis. Those who have left the settlement to seek education or employment elsewhere are all free from the disease. The *x*-ray findings indicate that an appreciable proportion of the children have been infected by tuberculosis, like the rest of us. If the hypothesis of reactivation of a tuberculous infection contracted in childhood be accepted, it cannot be said that none of these children will develop pulmonary tuberculosis in after-life or that they may not be exposed to superinfection. Nevertheless, not a few of the children have passed through the susceptible stage of adolescence without showing signs or symptoms of pulmonary tuberculosis, and it is not improbable that this resistance to disease may be maintained throughout life. Adequate food supply, instruction in dietetic values, assured employment with no risk of unemployment after breakdown, freedom from anxiety, proper housing, and hygienic precautions help to account for these remarkable results. Alone, without the many other beneficial features which I have described, they would justify the principles of the village settlement.

Rehabilitation of the Consumptive after the War

At the end of the war we shall be faced, as we were in the last war, by a still greater incidence of pulmonary tuberculosis and an increase in the foci of infection.* The approximate mortality figures are as follows: In 1939 the deaths from pulmonary tuberculosis in England and Wales were 22,000 (war conditions prevailed in only a little over three months of that year). In both 1940 and 1941 the deaths had risen to 24,000. Fortunately, in 1942 they dropped to 21,000, a decline which, it will be noted, has coincided with a lull in enemy bombing attacks on this country. Notifications of pulmonary tuberculosis, as is well known, form an imperfect guide to the incidence of the disease, as so many cases are reduplicated. It has been estimated from the latest available figures that the numbers of the adult population suffering from pulmonary tuberculosis in Great Britain at Dec. 31, 1938, was nearly 140,000. Of this total about 70,000 were classified as being able to return to ordinary employment, while about 20,000—most of whom were undergoing treatment in hospitals and sanatoria—were regarded as unlikely ever to return to any form of employment. In the remaining 50,000 the disease had been arrested or had become quiescent, and there was good prospect of achieving full recovery provided that special measures of rehabilitation were made available.* These are pre-war figures; wartime conditions have intensified the problem, and the number to be dealt with in the post-war period will show a considerable increase. Since the onset of war some advance has been made by the inclusion, under the Ministry of Labour's Scheme for Training and Resettlement of Disabled Persons, of quiescent and sputum-negative cases of tuberculosis in which the individuals are reintroduced into whole-time employment under ordinary industrial conditions (Ministry of Health Circular 2576, Feb., 1942). This, however, fails to meet the needs of those ex-patients for whom a slow and graduated resumption of work under medical supervision is required.

Varrier-Jones's pioneer work was partly inspired by the needs of tuberculous ex-Service men in the war of 1914–18, and in the present war the same problem arises. It is more and more becoming recognized that he found the true solution. The Medical Research Council's Committee on Tuberculosis in Wartime issued a report in 1942, which refers to the fact that the Papworth and Preston Hall village settlements have demonstrated one possible solution of the industrial problem provided by the chronic active case of pulmonary tuberculosis. The important Interdepartmental Committee's Report on the Rehabilitation and Resettlement of Disabled Persons devotes special attention to pulmonary tuberculosis, and states:

> "Perhaps the most complete type of care for the tuberculous person and his family is the combination of sanatorium and hospital treatment with a village settlement."

In accordance with the recommendations of the Medical Research Council's Committee the Government has recently provided special maintenance allowances for patients suffering from pulmonary tuberculosis (Memo 266T of the Ministry of Health, April, 1943). This enables these affected persons to give up work for a while and receive treatment. The allowances apply to everyone undergoing approved treatment. They are administered by tuberculosis authorities as part of local health services, and comprise "maintenance allowances" based on a standard scale and without any test as to means, to which can be added, at the discretion of the authority, extra grants or special payments towards commitments. For the first time official recognition is given to the fact, so often urged by Varrier-Jones, that economic circumstances again and again prevent the consumptive worker from seeking residential treatment for his disease.

Now village settlements are few and, in my experience, local authorities are reluctant to embark upon them, although the Nottinghamshire County Council, which established the Sherwood Village Settlement in 1936, is a notable exception. In 1919–20 Varrier-Jones, the late Dr. Nathan Raw, M.P., and I constituted a small Departmental Committee which explored the question of establishing village settlements for ex-Service men throughout England and Wales. In the end it was considered better to develop the existing settlements at Papworth and Preston Hall than to provide new organizations. It is extremely probable that a committee of this character to-day would reach a similar conclusion.

In 1936 Varrier-Jones advocated the setting-up of a national board in order to co-ordinate the planning of a national rehabilitation scheme. This was endorsed by the late Lord Willingdon and the Joint Tuberculosis Council. The Medical Research Council Committee now favours the establishment of such a board. In view of the demands which will assuredly be made for village settlements and rehabilitation of the tuberculous ex-Service man at the end of the war, this board's work and direction seem to be urgently required.

Conclusion

In this lecture I have endeavoured to describe the great contribution which Pendrill Varrier-Jones made towards combating tuberculosis, and its comprehensive character. In the brief time at my disposal I have been able to give only an outline of the many agencies which he employed. I have not told, for instance, how he arranged for the psychological treatment of certain of his patients. Indeed, different phases of this pioneer work pursued untiringly for many years would supply a wealth of material for many lectures. He faced much opposition; he crossed swords with those who preferred the ways of routine and established tradition. In the end he triumphed and had the satisfaction of knowing that his principles were sound—for, contrary to common belief, he had the humility of the true scientist in all his investigations—and that they had stood the tests of time and experience and were becoming generally accepted.

"Unto each man his handiwork, unto each his crown,
The just Fate gives;
Whoso takes the world's life on him and his own lays down,
He dying so, lives."

* * * * *

"Seeing death has no part in him any more, no power
Upon his head;
He has bought his eternity with a little hour,
And is not dead."

So Pendrill Varrier-Jones took upon him the consumptive's burden and made it easier to bear. He died too early, but his works do flourish and follow him.

NOTE.—The quoted passages from Sir Pendrill Varrier-Jones's published papers in this lecture are taken by kind permission of Mr. Peter Fraser, Sir Pendrill's literary executor, from *Papers of a Pioneer, Sir Pendrill Varrier-Jones*, collected by Peter Fraser, London, 1943. The quotation from Swinburne's *Super Flumina Babylonis* is by permission of Messrs. William Heinemann.

* Report of Interdepartmental Committee on the Rehabilitation and Resettlement of Disabled Persons. Cmd. 6415, 1943, p. 11.

ACCELERATION OF CO-ORDINATED MUSCULAR EFFORT BY NICOTINAMIDE

PRELIMINARY REPORT TO THE MEDICAL RESEARCH COUNCIL*

BY

I. M. FRANKAU, M.D.

(Psychological Laboratory, Cambridge)

This report summarizes the results obtained from a series of experiments undertaken to demonstrate by means of a selected test the effect, if any, of certain vitamins on the physical efficiency and the fatigability of healthy young adults. Increased resistance to fatigue, or increased muscular ability, as a result of the addition of certain vitamins, especially B_1, to the diet has been reported by a number of observers. Others have failed to show, either in brief extreme exercise or in prolonged severe exercise and semi-starvation, indications of any effect of the vitamin supplementation to the U.S. Army rations on muscular ability, endurance, resistance to fatigue, or recovery from exhaustion. The present series of experiments, extending from April to December, 1942, tend to show that the addition of certain vitamins to the normal diet of healthy young men generally results in varying degrees of increased efficiency in carrying out a fairly severe test involving

* Received for publication Feb. 9, 1943.

both physical efficiency and co-ordination. The experiments recorded in this report, with the exception of the Stanmore group, were carried out on selected personnel of the R.A.F. —air-crew cadets—who were in excellent physical training. The actual tests necessitated the utmost co-operation from the subject; without this co-operation no results of any value could have been obtained. The condition of the subject at the end of the test and his performance during the test were carefully noted, and in addition pulse rates were recorded at varying intervals.

Preliminary Tests

The test chosen was a modified form of the W.O. agility test. This test involves running rapidly, bending and turning quickly, and dropping disks accurately on a closely fitting shaft. No undue emphasis was laid on either accuracy or speed in describing the test to the subject, but the importance of finishing "flat-out" was stressed.

Four groups of young men from the I.T.W., ranging in age from 18 to 32, were tested on several occasions. They were extremely co-operative. The average time score for the first test was 60.75 seconds, and for the second 56.69 seconds. The difference between the time scores of the first and second tests was marked and relatively constant. There was little difference between the scores of the second, third, and subsequent tests; the second test was therefore adopted as the control test. There was very little scatter either in any single group or in the groups considered as a whole. In less-selected groups, such as civilians or the Home Guard, the time scores were found to vary considerably both from time to time and from subject to subject.

Modification of Test

It was obvious that this test in its original form would not produce any measurable degree of fatigue in subjects who were as physically fit as the I.T.W. Increasing the number of disks from 16 to 24 raised the average time score to 85.62 seconds; the time taken to complete 8 rounds (the original test distance) remained unaltered. Consideration of the clinical condition of the subject in conjunction with the time scores indicated that the test was still not severe enough. The effect of multiple vitamin tablets given to a small group who were retested was neither marked nor constant.

The distance of the test was finally increased from the original 170 yards to approximately 300 yards. In addition to the time taken to complete the test the number of disks dropped or misplaced was noted. The average time taken to complete the first test was 113.64 seconds; and for the second test 105.43 seconds. There was no obvious increase in the relative time taken to cover the last 4 rounds; the number of dropped or misplaced disks, however, was greater with several subjects, especially towards the end of the test. During the standardization of this test over 100 subjects were tested. The test was severe, and only a limited number could reasonably be carried out on any one subject. Two control tests were recorded on one day—the interval between the tests being 30 minutes—and two "experimental" tests on another day. The interval between the experimental tests was reduced to 15 minutes.

Effect of Multiple Vitamins

Experiments were carried out on 20 subjects, 10 of whom received on three successive days vitamin tablets containing vitamin A 8,000 i.u., vitamin D 1,200 i.u., thiamin 2 mg., riboflavin 4 mg., ascorbic acid 100 mg., and nicotinamide 40 mg. The remaining 10 received tablets indistinguishable from the vitamin tablets. The results of these experiments are recorded below; the mean time (in seconds) is for the complete test. Negative differences indicate that the experimental times are shorter than the control times.

Control Group: Control time, 104·22; experimental time, 104·11
Difference −0·11
Vitamin Group: Control time, 107·59; experimental time, 104·75
Difference, −2·84

Tests were carried out on two larger groups using vitamin tablets which contained: aneurin 5 mg., riboflavin 5 mg., ascorbic acid 100 mg., and nicotinamide 50 mg. One group received vitamin tablets on four successive days; a control group received tablets indistinguishable from the vitamin tablets. Tests were carried out on the fifth day. The results of these experiments were as follows:

Control Group (22 subjects):
Control time, 107·43
Experimental time 1, 108·43; difference, +1·00
" " 2, 107·30; " −0·13
Vitamin Group (22 subjects):
Control time, 110·30
Experimental time 1, 109·66; difference −0·64
" " 2, 106·98; " −3·32. Significant

A comparison of the experimental time scores with the control time scores shows that in the control group a diminished score was recorded by 5 in the first experimental test and by 3 in the second; in the vitamin group a diminished score was recorded by 12 subjects in the first test and by 15 in the second test. Co-ordination, as demonstrated by the number of disks dropped or misplaced, was better in the experimental tests in the vitamin group; in the control group there was deterioration in the co-ordination, especially towards the end of the experimental tests. The pulse rate was taken before each test and again within 10 seconds of the end of the test. The interval between the experimental tests being 15 minutes, the pulse rate at the beginning of the second test was therefore a measure of the return of the pulse to normal after the first test. It is noted that the original pulse rates are higher in the majority of these subjects than the generally accepted figure. The drop in pulse rate during 15 minutes is also less than was anticipated.

These experiments were carried out during the spring and summer, and it was noticed that exhaustion appeared to be less marked in subjects who had received vitamin tablets. This observation was not made during later experiments using other vitamins.

Stanmore Experiments

A series of experiments were undertaken using vitamin tablets from which (1) the aneurin was omitted, and (2) both the aneurin and the ascorbic acid were omitted. Personnel from No. 3 Balloon Centre were selected, ranging in age from 18 to 34, and divided into three groups. Group A received tablets containing ascorbic acid 100 mg., riboflavin 5 mg., and nicotinamide 50 mg. Group B received tablets containing riboflavin 5 mg. and nicotinamide 50 mg. Group D received control tablets.

The tablets were given on six successive days, and tests carried out on the seventh day. These men were drawn from various trades, were not volunteers, and were extremely co-operative. The results of these experiments were as follows:

Group A:
Control time, 111·26
Experimental time 1, 109·86; difference, −1·40
" " 2, 107·58; " −3·68. Significant
Group B:
Control time, 115·81
Experimental time 1, 114·93; difference, −0·88
" " 2, 113·23; " −2·58. Significant
Group D:
Control time, 120·98
Experimental time 1, 119·68; difference, −1·30
" " 2, 120·53; " −0·45

A diminution in time scores was therefore recorded after both aneurin and ascorbic acid were omitted from the vitamin tablets. Co-ordination appeared to be better in the vitamin groups than in the control group.

Brighton Experiments

Experiments were carried out at Brighton during October and November on the effect of nicotinamide alone. The subjects were physically fit young men with 6/6 vision selected from U.T. air-crews, and in some cases were volunteers. Control times were recorded on one day, and on the following day each subject was given 50 mg. of nicotinamide at 9 a.m. Tests were carried out at 10.30 a.m. on 23 subjects and at 2.30 p.m. on 16 subjects. The test times of the 23 subjects who were tested 1½ to 2½ hours after receiving nicotinamide were:

Control time, 116·22
Experimental time 1, 111·57; difference, −4·65. Highly significant
" " 2, 111·35; " −4·87. " "

The test times of the 16 subjects who were tested 5½ to 6½ hours after receiving nicotinamide are recorded below and indicate that the effect was considerably less than that recorded above.

Control time, 116·31
Experimental time 1, 115·25; difference, −1·06
" " 2, 114·00; " −2·31. Significant

In November tests were carried out on another group of 19 subjects, all of whom had received 200 mg. of nicotinamide 1½ to 3 hours previously. The test times were:

Control time, 122·26
Experimental time 1, 117·84; difference, −4·42. Significant
" " 2, 115·21; " −7·05. Highly significant

The suggestion was made by Dr. Platt that a single dose of nicotinamide should be given at specified times before the experimental tests, and the experiments were carried out in conjunction with him. It is noted that a somewhat different pattern in the results was obtained.

Having demonstrated that the effect of a single dose of nicotinamide resulted in a well-marked diminution of the time taken to complete the test and that this effect was most marked 1½ to 3 hours after administration of the vitamin, it was essential to ascertain if similar effects would be obtained when tablets were given on six successive days and tests made on the seventh day. This investigation was therefore carried out on 24 I.T.W. subjects at Cambridge in November, and the results were:

Control time, 118·58
Experimental time 1, 116·54; difference, −2·04. Significant
" " 2, 114·62; " −3·96. "

The pattern of these results is somewhat different from that of either of the other groups.

Summary

It has been shown in a series of carefully controlled experiments that the addition of nicotinamide alone, or of nicotinamide and certain other vitamins, to the diet of fit young men results in increased efficiency in carrying out a fairly severe test involving both physical effort and co-ordination.

The test chosen was severe, and called for the utmost co-operation from the subject, whose condition at the end of the test was just short of distress, as evidenced by his breathing and pulse rate.

In earlier experiments the subjects appeared to be less exhausted after the administration of vitamins.

Later experiments appear to indicate that continued heavy or exhausting physical stress may necessitate increasing the dose of nicotinamide.

Experiments which were carried out in conjunction with Dr. Platt and Prof. Ellinger will be reported jointly.

The whole of the work described in this report, and all the projects indicated, have been carried out or planned at the instance and with the support of the Medical Research Council.

I should like to acknowledge my indebtedness to Prof. F. C. Bartlett for his constant help and advice, to Sir Edward Mellanby for his interest and guidance in the administration of the vitamins, and to the many officers of the R.A.F. without whose unfailing help and co-operation this work would not have been possible. I should also like to thank Mr. E. G. Chambers, to whom I am indebted for all the statistical results, and to Sgt. J. M. Yallop (W.A.A.F.) for her assistance in the experiment and for all the clerical work.

ANXIETY STATES IN THE NAVY

A CLINICAL SURVEY AND IMPRESSION

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A survey has been made of approximately 1,300 cases of anxiety state which have been under our care in a Royal Navy hospital during 1940 and 1941. These impressions have been amplified and modified by later experience in the hospital and in a naval depot.

The term "anxiety state" does not reflect the whole picture, but is a convenient designation; the basic condition is considered to be anxiety in its psychosomatic manifestations, and it is this reaction that is regarded as releasing the varied psychopathy of the constitutions affected. Depression in some degree was an almost constant finding in the more established cases, and for descriptive purposes the diagrammatic concept was formed of a straight line with a pure anxiety reaction at one extreme and a depression of the reactive type at the other; clustering around this line there is a big constellation of symptoms and signs, including hysterical features, any of which may be present or absent. The syndrome may therefore present a very varied picture.

Points of prognostic import in the routine case-history are enumerated, stresses are discussed, the three main phases of development of the anxiety state are outlined, symptomatology as it affects the various systems is reviewed, and a brief summary of methods of treatment is made with a note on the chief elements in prognosis.

Anamnesis

In reviewing the cases an attempt has been made to assess significant factors emerging in the routine anamneses. In the direct family history—i.e., parents and siblings—there is in most cases a sufficient degree of instability to be realized, and quoted by the patient, as "nervous," "worrying," "hysterical." Psychosis is relatively rare. In infancy the more inadequate types produce with monotonous regularity claims that they "were difficult to rear," "have been given up," or "have had pneumonia" an astonishing number of times. By such reflections can one see the image of poor home conditions and an over-worried mother. During school years shyness, timidity, seclusiveness, fondness of reading as recreation or of swimming and walking as sports, all suggest a tendency to withdraw from the demands of schoolboy life and augur difficulty in adjusting later to the very similar claims of the fighting Forces. At the opposite extreme, "the young devil," "always in mischief," and "never out of trouble" indicated by these excesses a temperament often incapable of withstanding the threats and dangers of war.

The standard attained at school was used as a rough preliminary indication of the intelligence level. Truanting in the great majority of cases signified simply marked mental backwardness. Minor degrees of backwardness were by no means of bad import, but if breakdown did occur in such cases prognosis for recovery and return to duty was poor. More valuable, however, was the work record in rapidly assessing a man's prospects in the Service. Frequent changes of job justified in such phrases as "could not stand the heat (noise) in the factory," "had to give it up," "wanted a change," "got fed up," indicate a personality which will adapt poorly to Service conditions. Endless changes of job suggest marked mental defect.

Sexual maladjustment was conspicuously rare as an overt factor in breakdown compared with experience in civilian psychiatric practice. In part this is explained by Service psychiatry's dealing with a much wider group than would in peacetime attend a psychiatric clinic.

Previous organic illness was of importance in focusing anxiety on a system or the basis of hysterical phenomena. Age beyond middle life and arteriosclerosis facilitated the development of symptoms and impaired prognosis.

Stresses

The stresses to which the individual is subjected in the Service are remarkedly constant. Separation from home and family bears heavily on the youth, particularly the only or youngest son, for whom the solicitude of the mother is still the criterion of what he may expect from the world: discomforts and hazards are magnified by too sympathetic an appreciation of their importance in her eyes. The older man experiences the rupture of recently established ties or the absence from wife and family, for years an integral part of his daily life. For certain men, to whom the establishment of a home has through the circumstances of their own early lives assumed a peculiar importance, its break-up through conscription and evacuation is often enough to precipitate breakdown. By no means rare, however, were the men in the later thirties for whom war meant a fresh lease of youth and an unacknowledged relief at sloughing, if only temporarily, the burdens and responsibilities of domesticity. For them Nemesis lay in the reaction and behaviour of a wife unreasonably, but with intuitive justice, resentful of the claims of duty.

Particularly difficult situations arise, too, where marriage has been the episode of a short leave and a young wife finds herself still living in the home of his or her parents, with but a wedding-ring to remind her of her altered state and that many barriers

have risen between her and the "good time" she has hitherto enjoyed. The mother, sisters, and men friends of the absent husband are watchfully ready to report and magnify to him her most casual association with a member of the opposite sex. Long watches give ample time for brooding and bitterness, which do much to break down his resistance to more concrete dangers. Similarly does the situation develop of the older man who learns that the mother of his children, to whom war has meant a doubling of her burdens and the withdrawal of support, has sought companionship in a dance hall or public-house, which she has possibly never before entered. The importance of such anxieties goes far beyond the relatively small proportion of cases in which the wife is actually unfaithful.

Physical hardship and discomfort are less obviously a factor in breakdown—the normal capacity for adaptation to them is very great. More important is the effect of lack of privacy and uncongenial company on the white-collar group of the population.

The problem of the "square peg in a round hole" is much more complex than is generally appreciated. During war the Service requires a vast number of men, physically healthy and of average intelligence, who may be trained to be the "working men" of the Service—the seamen, stokers, etc.; it is supplied with civilians accustomed each to his own occupation, trade, or profession. An adaptable individual of the required standard of physique and intelligence is readily trained for the business of war. A man of lesser endowment may have been employed as a civilian in the one sphere where the qualities he possesses are of value, and may have been relatively successful in that sphere. Should this limited type of qualification be one required in the Service, and he be so utilized, he is satisfied. If, however, his experience is not applicable to Service life, or should the number so qualified which the Service requires be small, the man is liable to be employed in a section for which he is not qualified, and his sense of inadequacy is often embittered by the belief that his fate is due to muddling and injustice.

Commonly labelled as "square pegs" are the youths for whom life has yet been too easy, and who are liable to dignify their distaste for continued effort by the belief that they are inappropriately utilized. Finally there are the psychopaths, inappropriate in any section, who too often regard failure in a job of little responsibility as an adequate recommendation for a position of greater trust.

Such maladjustments to the very rigid framework of Service existence are potent causes of anxiety and breakdown.

More intangible factors in maladjustment often present themselves during the period of training—these again more often in the youth who has not yet learned to subordinate himself to the task in hand, and who welcomed his civilian work as a source of livelihood but not his real interest in life. The Service assumes that the individual regards the job as more important than himself. Further, the tradition that only perfection is passable, with the corollary that explanation is no excuse for failure, is still acted on in the Service. These tacit assumptions lie behind much of the tradition of the Service, but to the new entry they may appear as callous disregard for himself as an individual, continual fault-finding, and an unfeeling refusal to listen to reason. In the early stages of training the stimulus and interest of a new life are sufficient to counterbalance these asperities, but in the second or third month, when familiarity has staled but habit has not yet accustomed him to the Service or involved him in the group spirit, the reaction may be one of rebellion, depression, or anxiety. Later, fellowship in responsibility in the smaller units of the ship and growing confidence restore injured self-esteem.

Once at sea the actual physical threats to life present themselves. To the imaginative the period leading up to action often brings the dread of proving inadequate: the inexperienced knows not what to expect; the experienced may dread failing in his responsibilities. The immediate stress, whether from air attack, action, exploding mine, or torpedo, produces a response which may be disability at the time or which by frequent repetition induces disability. Often overlooked are the stresses peculiar to the engine-room branch or stoker ignorant of what is happening above. For him a sudden reverberation, plunging him in darkness and throwing him among clanging and shifting engine-room fittings, is as much a trauma, whether due to a mine dispatched by his own gear or by a near miss or a bomb or torpedo striking the ship. For the man below deck every possibility lies in the first concussion. At the other extreme lie the experiences of the man too long in northern waters, particularly in small ships. Here monotony of up to a week at sea with a small crew, with short visits to bases that offer no attraction to going ashore, and heavy weather in latitudes that in the winter months mean "darken ship" for 18 or more hours of the day, produce a severe reaction curiously similar to the anxiety-exhaustion and depressive syndrome presented by the sufferer from prolonged or severe stresses by enemy action in more southern latitudes.

Development of Anxiety State and Symptomatology

Subjected to the above-mentioned stresses, the individual tends to react with unexpected uniformity to an eventual state of anxiety which, however varied its manifestations, does in its essentials run true to form. The concept adopted regarding the development of these states was of the psychosomatic unit, subjected to a variety of stresses, endogenous and exogenous, and reacting to these at first physiologically: with undue prolongation of the demands disability supervenes. The less stable types or those in whom there is a smaller constellation of factors making for continued effort break down early; the more stable types and those in whom strong reinforcing sentiments are present do not come under medical care till a more advanced state is reached. The more inadequate types—the temperamentally unstable, the constitutionally inferior, and the mentally backward—often show up in training with mild depressive or hypochondriacal features. They complain of exhaustion, weakness, headaches, or "effort syndrome." (The more robust but maladapted frequently come into conflict with naval discipline at this period.) This may be regarded as the eliminating period of service. The vast majority who survive this test of adaptation may react to conditions of service or stress at sea with disability at three different stages.

Stages of Stress

Immediate stress of danger results at first in what may be regarded as a physiological adrenal-sympathetic response, with a mood of anxious expectancy (Cannon's (1929) "fight or flight" reaction). The physiological propriety of this response is not, however, apparent to the rating, aware only of blurring vision, beating heart, "stomach turning over," and tense or trembling musculature. In the stable, the need for action dissipates the discomforts of his state, and a mood approaching exhilaration often supervenes with gradual relaxation. The temperamentally unstable may over-react, however, to complete ineffectiveness. This may be regarded as disability supervening at the stage of *early stress*.

More commonly the repetition of such dangers leads to a state of heightened expectancy and somatic tension which, while appropriate and in fact synonymous with good morale, may become irreversible when threats are frequent. When relaxation does not occur with relief from strain on leave or ashore, and preoccupation with physical and mental discomforts develops, an anxiety state must be presumed to exist. Presenting himself, the patient may complain of the sense of tenseness or of palpitation, epigastric discomfort, or other correlates of his condition. The clinical picture is of dilated pupils, increased sweating, tachycardia, slight tremor, and increased tendon reflexes. Blood pressure is usually found markedly raised: readings of 170/100 or over are almost routine in the sick bay at this stage. This is regarded as the state of *established tension*.

In most cases of the more stable, conscientious, or experienced types the man may remain at duty for a prolonged period after the stage of established tension. Anxiety and somatic tension, though still present, become less obvious, and the presenting picture is more of depression and exhaustion, with emotional lability and loss of weight. Blood pressure is less elevated, or is even lowered, though tendon reflexes remain exaggerated. It is more commonly in this final state that misleading preoccupation with symptoms or signs in relation to one or other of the systems gives rise to the erroneous diagnosis of organic illness. This final state we have termed *anxiety with exhaustion*.

The concept of the development of anxiety state with disability developing at the phase of *early stress*, the state of *established tension*, or final state of *anxiety with exhaustion*, according to the stability of the constitution affected, is clinically valuable from the point of view of prognosis and treatment. In practice, however, the picture present is mixed, and an attempt has been made to discuss the whole range of symptoms. These may be psychic, somatic, or mixed, and vary from mild disturbances of function to gross hysterical features.

Psychic Symptoms

In the psychic sphere the anxiety varies from mild waves in the moments of stress to acute panic attacks. It has been found that even in the sheltered existence in hospital the latter occur, and they are very infectious. Anxiety itself is directed towards a number of different objects. In some, of course, it is the frank fear of danger, freely admitted. It is noteworthy, indeed, in our cases that refusal to admit fears to themselves, with consequential conflict, was very rare, and when it did occur appeared chiefly in the older, better-trained, and obsessional types. In others the object was family responsibility; fear of going insane, of blindness, of something being seriously wrong, especially in those who showed cardiac or gastric symptoms. There was also found the fear of heights, water, and trains, of being shut in or sleeping below at sea. With regard to the family, justification for anxiety often existed when dependent relatives were sick, alone, in poor economic circumstances, or exposed to raids on civilian population.

Sleeplessness was a very common symptom, and presented itself in varying aspects. There was difficulty in going to sleep, or the patient woke up at frequent intervals. Often sleep was disturbed by dreams, and he woke in the morning unrefreshed and with a headache. The dreams also varied. War dreams were common, and the patient often relived some horrifying experience, or woke up sweating after anxiety dreams. Many described their dreams by the phrase "mixed up."

Complaints of being easily tired, of lacking energy, and at the same time of restlessness and being unable to settle are frequently made. Coupled with this was a poor memory for recent events and forgetfulness. Characteristically also there was an inability to concentrate. Some patients found themselves unable to read more than half a page of a book at a time or to take in the gist of the subject-matter.

Loss of confidence and fear of responsibility or of "letting the others down" were both a symptom and a reason for augmented anxiety. Many complained of increased irritability. This appeared not so much with their fellows, since the dislike of company made them desire solitude, as with their home circle. The question, "Does your wife find you more short-tempered than usual?" often brought a rather sheepish reply, "I am afraid so, sir." Emotional disturbance was so constant that it was found advisable to have a small box of gauze squares at hand with which to supply the patient, who frequently broke down and wept during the interview. Increased consumption of alcohol was either an escape from reality or, in some cases, a spur to keep going.

Many of these symptoms explain themselves, and appear either in a setting of anxiety or, not infrequently, without much overt anxiety.

Somatic Symptoms

In the cardiovascular system symptoms were fairly common. Usually the tachycardia and palpitations became the focus of anxiety through ill-advised medical advice in earlier life or variously derived dreads of "heart disease." Precordial pain was often present in such cases and dyspnoea less commonly so. Frequently a man had entered hospital with a diagnosis of cardiovascular disorder based on those symptoms. In such cases no organic lesion was found. It was our experience, however, that the effort syndrome as such was rare in the Navy, and when present emerged generally in the training period and as an anxiety manifestation.

The blood pressure seems to vary at different stages in the illness. In acutely disturbed or shocked cases after some catastrophic event it was found to be low—just above or below 100 mm. systolic. In established cases there was a period when it was raised, while in later cases or those showing exhaustion it was lowered.

In the genito-urinary system frequency of micturition and even enuresis occurred in a number of cases, and may be either a symptom of a fairly severe state or a chronic manifestation without much apparent anxiety. In the former, we consider that both complaints clear up with general improvement, but as a chronic manifestation they have proved stubborn and difficult. Experience, however, has taught the necessity for checking a patient's own statements as to how often he micturates. In some cases these have been proved not wholly unconscious exaggerations. Impotence has been complained of in established cases in which the depressive element was strong, and is also found to clear up with treatment of the general condition.

Digestive disturbances are frequent. Morning nausea and often vomiting are complained of. Poor appetite is the rule rather than the exception, with the inevitable accompaniment of loss of weight. Functional dyspeptics were not as a rule admitted to a psychiatric ward. They usually are not recognized for what they are, and are admitted for gastric investigation. After negative results have been obtained the neuropsychiatric specialist has been asked to see them. Here, too, it is believed that symptoms are often considerably exaggerated. It is our opinion that gastric investigation should be undertaken in all cases and the psychiatric angle of the case then be tackled. There is usually no difficulty in finding other evidences of the anxiety state; where these did not exist the case was not regarded as psychiatric. Particular importance was attached to impressing medical colleagues with the difference between a dyspepsia in which no evidence of lesion had been shown by a fractional test meal and by radiographs—which remains a medical problem—and dyspepsia occurring as part of an anxiety syndrome.

Other Symptoms

Pain has been met with in every system, and in all parts of the body and all degrees of severity. There is little doubt in our minds that the anxious person is more aware of pain and that his mind, centred on his bodily sensations, has a lowered threshold for pain. A frequent complaint was of "shooting pains all over the body." Various muscular aches in the limbs were common, as was backache. Localization of pain often depended on an associated idea in the patient's mind.

Headaches were almost always present—sometimes accompanied by dizziness and sometimes based on a former head injury. It was often clear, however, that the injury had set the stage for, but was not organically responsible for, this symptom. The headaches, whatever their basis, may appear as a dull ache, a band of tightness, a feeling of vertical pressure, or an acute throbbing sensation in the temporal or occipital regions.

Grosser hysterical phenomena were rare and often occurred on the basis of mental backwardness or in a psychopathic constitution. We attach great importance to the necessity for regarding hysterical manifestations as but symptoms of the fundamental anxiety, and no attempt has been made to separate those cases which showed hysterical phenomena from the general mass of anxiety states. This evaluation of symptoms in true perspective avoided the temptation of spectacular "cures" and correspondingly dramatic subsequent conversion phenomena.

While functional weakness of a limb or part of a limb was observed fairly often, paralyses were relatively uncommon, and were certainly on a far smaller scale than was evident in the last war. In many cases the basis was an original organic lesion, and it became axiomatic to seek this organic basis.

Amnesias and fugues occur frequently. In not a few they begin while on leave or on the journey back to duty. Many of these were at a fairly conscious level, and in some cases were judged to be retrospective rather than to be true amnesias. It is considered that they often developed in a setting of mild depression. For a man to claim loss of memory as a reason for evading punishment for being absent over leave is only too easy a way out, from his point of view. A good deal of care was taken to avoid errors in assessing the man's responsibility. Repression and amnesia for painful experience have also been found to occur rarely, and, when present, related to such catastrophic events as being trapped below in a sinking ship; on one occasion they were related to guilty feelings in the patient, who had sought safety while his friend drowned.

Unexpectedly it was found that the conflict between duty and self-preservation was seldom repressed or the basis of a complex-determined symptomatology.

The ordinary man is, in this war, under no difficulty in admitting to himself that he is scared and would prefer to be elsewhere. That he does not give way to this feeling, but rises to the demands of a situation, may be the basis of later anxiety, though not of conversion symptoms. This fact, with the recognition of the anxiety state as such, doubtless explains the relative absence of conversion hysteria.

Anaesthesias and paraesthesias occurred with moderate frequency and varied in degree and situation. Here again there was often an original organic basis. Stammering appeared from time to time, and as a rule there was a similar history of this trouble in childhood.

Minor disturbances of vision were relatively common, although the grosser ones were less often seen than might have been expected—e.g., photophobia, occurring after exposure to explosion flash. Far more frequent were blurring of vision, with "spots before the eyes" and amblyopia. Night blindness was a common complaint, and in not a few instances functional failure to focus. This was chiefly demonstrated in those with a refractive error which was not improved by appropriate lenses. Visual complaints failing to improve with the general condition were in a significant number of cases found to be based on blindness in a relative and a corresponding fear in the patient.

Only a few cases of aphonia were seen; these usually clear up rapidly.

A history of "collapses," fits, and faints was commonplace, but occurrence of such in hospital was on the whole rare. They were not always easy to assess, for the classical hysterical fit was seldom seen. Some were undoubtedly syncopal attacks, others vasovagal, but there was a considerable group that did not fall into these categories, nor were they epileptic.

Treatment

Most cases seen in hospital are those which treatment from the ship's medical officer or in the local sick bay has failed to clear up. Briefly, such treatment has consisted of encouragement, reassurance, and sedation with short periods of rest in the sick bay. It must be emphasized that a large proportion of the milder anxiety states are adequately treated in this way and never reach hospital—treated often by medical officers who themselves experience corresponding stresses and are well able to judge the severity of the symptoms. The treatment to be discussed, however, is that of the cases that enter hospital.

Here the basic principle adopted has been that of resting the over-stimulated organism as a first measure and bringing it back to normal functioning as the second. Admission to hospital secures relief from the immediate situation; rest in bed, with the use of normal sedatives—i.e., bromides by day and barbiturates by night—and recourse to paraldehyde for the restless, is sufficient to ensure relaxation in the milder cases. Where loss of weight, debility, and exhaustion occurred without marked tension an effort was made to build up the physical condition and bring about an increase in weight. The usual methods were adopted, but a useful adjunct was the administration of insulin and glucose daily over a period. Small doses of from 5 to 10 units twice daily were employed with liberal carbohydrates. We did not use insulin sopor.

In cases in which exhaustion and loss of weight are marked and emotional tension is so severe as to prevent relaxation continuous narcosis has been found of great value. It has also been highly beneficial in cases admitted immediately after heavy raids or attacks, when the patient may show violent agitation, gross tremor, and somatic disturbance so pronounced as to render him inarticulate or even to produce a confusional element. The technique is a modification of that described by Mira (1939). For hyoscine, which frequently proved toxic, paraldehyde has been substituted. The treatment lasts for 72 hours; sleep is maintained by 1½ gr. of phenobarbitone 4-hourly during the whole period. This is reinforced by 2 drachms of paraldehyde, administered freely up to 10 to 12 drachms in the 24 hours. Ordinary light diet is given, with fluids "pushed."

Used as an immediate treatment in grossly agitated and acute cases this technique has proved spectacular in relieving the patient's distress and subduing the gross physical disturbances that are otherwise apt to be hysterically prolonged. All cases, however, so treated have shown marked improvement in physical condition. Emotionally there is a sense of relaxation, sleep is re-established, tremors disappear, and the patient is encouraged by the feeling of relief and relative well-being. The improvement, however, is regarded as but a first step, most significant in men of good personality whose symptoms have been precipitated by prolonged or severe stress of active service. In the more inadequate and unstable types, whose anxiety is a reaction rather to the situation of war than to specific stress, the disturbing factors tend to come into play again as soon as full consciousness is regained. Cases showing depressive factors also react well.

Psychotherapy, as such, was of necessity superficial or symptomatic or limited in its application to problems of adjustment to Service life or conscious experiences. While an essential part of the treatment of every case, it is probable that by itself it seldom made the difference between a man's retention or discharge from the Service. In minor hysterical phenomena, such as tremor or spasm, treatment was firmly directed towards the underlying anxiety state, and, in the main, symptoms liable to be prolonged were found to clear up *pari passu* with the general condition. Suggestion and persuasion were occasionally of value as symptomatic treatment. A certain amount of relief is obtained with abreaction, and recovery of painful experiences with direct hypnosis or by the medium of narco-analysis as described by Mallinson (1940). Again, however, the general condition remained to be treated.

Occupational therapy, physical training, gardening, and hospital concerts were useful measures in returning to normal attitudes. The patients, too, were encouraged to go for afternoons outside the hospital grounds when possible.

The adjustment of concrete personal and domestic problems, where possible, was regarded as of such importance in promoting recovery that particular attention was paid to it. Too much stress cannot be laid on this. The recognition by the executive authorities of recommendations made was helpful, while the Welfare Officer and the Royal Naval Benevolent Trust invariably assisted when approached.

The prognosis of every case was assessed as soon as possible after admission and the patient informed. Those in which the outlook was thought to be unfavourable were recommended for consideration for invaliding as soon as they were well enough to be discharged to civilian life.

Hospital treatment beyond two to six weeks was required only in a small proportion of cases, and, in those, transfer to an establishment devoted to rehabilitation measures was effected. A moderate period of sick leave gave the stimulus of restored personal relations, relieved domestic anxieties, and revived a sense of independence; but prolonged leave was recommended with increasing discretion. The men returned to full duty, or frequently to service on shore preliminary to full service. While on shore service they were recommended to be under the eye of the neuropsychiatric specialist in their depot. He could then give the appropriate guidance to the executive authorities, maintain contact, and arrange for suitable employment in depot, or finally effect return to full duties at sea in an area of diminished stress.

Prognosis

In general it was found that the results of treatment were satisfactory. Prognosis was poorer in the cases described as constitutionally inferior or temperamentally unstable, particularly when allied with any degree of mental backwardness. It was also poorer where a prolonged state of tension had preceded a severe trauma such as being trapped in a sinking vessel. No close relation between age and prognosis was observed, except where the factor of arteriosclerosis entered. In such cases prognosis was bad.

The general result of our observations has been that there is a remarkable capacity for recovery from anxiety states in the averagely endowed and stable individual. Except where the above-mentioned factors operate, return to duty at sea with repeated stress can be anticipated.

Even in the cases of poorer prognosis return to some form of service in a position of diminished stress can be achieved in a large proportion of cases. Particularly has this been found

to be the case since a neuropsychiatrist has been established in the depot, with all his advantages in familiarity with conditions and demands and power to recommend disposal.

We wish to express our thanks to Sick Berth Petty Officers Orr and Winson for great pains in extracting the case material and copying the drafts on which this article is based.

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NITROUS OXIDE ANAESTHESIA: A CRITICAL EVALUATION

BY

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Nitrous oxide–oxygen is usually considered the safest and best anaesthetic agent. At the present time, when non-experts in increasing numbers are being called on to act as anaesthetists in both military and civil practice, a critical examination of this statement is necessary.

While quite suitable for many operations on susceptible patients, nitrous oxide, being the weakest of all anaesthetic drugs, is rather an agent for the production of unconsciousness than one which can provide any degree of muscular relaxation. The attempt to produce the former in many anaesthetic-resistant patients and the production of the latter in nearly all cases are usually accompanied by such a degree of anoxia as may often be dangerous. Thus Macintosh (1938) states that "its use by inexperienced anaesthetists for major surgery is fraught with disappointment if not carried out boldly, and with danger if it is"; while Clement (1939) in the standard work on the subject acknowledges that "deep, prolonged anaesthesia with nitrous oxide implies a drastic and continued curtailment of the oxygen supply which greatly augments any degree of anoxaemia that may be present" (p. 97); and, again, "The abnormalities" (of respiration) "occurring in the deeper planes are all evidences of oxygen want. . . . The symptoms produced in the nervous system by nitrous oxide–oxygen administration are in reality those of a gradually progressing state of anoxaemia" (p. 40).

Arguments against Nitrous Oxide

In these circumstances, why is nitrous oxide anaesthesia continually recommended when its use must often imply considerable oxygen want? The three main arguments are all propounded by Clement: (1) that anaesthetic agents in general produce their effects by reduced oxygen utilization, and nitrous oxide in particular "by the exclusion of the oxygen in the inspired air" (p. 98); (2) that nitrous oxide is an indifferent inert gas without any direct action or effect upon the body tissues (p. 23), and it is assumed, therefore, that any additional effect of anoxia on the tissues will be minimal, if not harmless; (3) that "the body shows a remarkable tolerance to moderate, and even temporary severe, degrees of oxygen want" (p. 97). In my opinion the weight of evidence is against each of these statements.

1. The theory that the narcotic action of anaesthetic drugs in general, or of nitrous oxide in particular, is due to depressed oxygen utilization is not supported by recent research. Henderson (1930), after reviewing considerable evidence, concludes that "oxidative processes and narcosis are separate phenomena. . . . No theory of anaesthesia will prove acceptable which is based on a proof of a depression of the resting oxidation of the cell." Pask (1941) reviews the recent work on this subject, and also concludes that under clinical and experimental conditions anaesthesia had no effect on the oxygen uptake of the intact organism or of isolated tissues.

2. Nor can it be assumed with certainty that the effect of nitrous oxide on the tissues is negligible. Clinical experience does not support this assumption, for short anaesthetics for minor surgery, even in the absence of anoxia, are often followed by headache, vomiting, and a feeling of distress and giddiness. Macintosh and Bannister (1941) state that they attempted to produce anaesthesia sufficient for dental extractions in 50 cases by nasal administration of nitrogen, and "although in all cases unconsciousness was reached, in the robust or anaesthetic-resistant type the full anaesthetic state was not achieved. . . . If nitrous oxide has no anaesthetic effects, but acts only as an oxygen replacer, any inert gas would furnish as satisfactory an anaesthesia; actually, the anaesthetic properties of nitrogen are not as effective." Even were this assumption to be true, it is difficult to understand how it would render less harmful the effects of frank anoxia on tissue cells. Experience shows that the adoption of this assumption as a working basis often results in an anaesthetic technique which cannot be considered good practice.

3. The statement of Haldane (1922) that "anoxaemia not only stops the machinery but wrecks the machine" would appear to me to be as applicable to anaesthesia with nitrous oxide as to any other clinical condition. Indeed, recent research and clinical experience have not only confirmed Haldane's work but have demonstrated that the effects of anoxaemia may be insidious or delayed (Armstrong, 1939). Thus Samson Wright (1940) concludes: "A slight degree of oxygen lack may therefore act insidiously and only reveal its effects after a long latent period. . . . Following prolonged severe exposure to oxygen lack, very formidable after-effects occur." Courville (1936, 1939) has produced convincing evidence of the damaging effect which oxygen deficiency during anaesthesia, especially with nitrous oxide, may produce on the central nervous system, particularly on the cortex. He has shown how minor degrees of anoxaemia may cause permanent damage, which may not become apparent until after a considerable latent interval, while even a few minutes of severe anoxaemia may produce permanent damage. As Pask (1941) has emphasized, "immediate apparent recovery from a period of anoxia does not necessarily mean that a patient, particularly a shocked patient, has not suffered harm."

Cyanosis

Clinical experience does not support the view put forward by Clement: "The difference between the cyanosis associated with nitrous oxide–oxygen and that with other anaesthetic agents has been frequently overlooked" (p. 38); "cyanosis during nitrous oxide–oxygen anaesthesia has been given the same significance as with all other anaesthetics, thus the mode of action of nitrous oxide in producing anaesthesia by the exclusion of oxygen is ignored" (p. 103). The implication in these statements is that cyanosis is of a different nature when associated with nitrous oxide, and they have often been taken to justify its use in circumstances which must imply a considerable degree of anoxaemia.

Cyanosis depends on the absolute amount of reduced haemoglobin in the blood, the amount of oxygenated haemoglobin present being of little importance (Lundsgaard and van Slyke, 1923). Thus in plethoric individuals cyanosis may occur without anoxaemia, but such patients form a very small proportion of those coming to operation. Unless the haemoglobin concentration of any surgical patient is known to be above normal the possibility of cyanosis occurring without anoxaemia may be ignored.

Far different is the case with anaemic patients, who, in surgery, comprise the great majority. Here, the oxygen-carrying capacity of the blood being below normal, even when fully oxygenated there may be some anoxaemia, although the amounts of reduced haemoglobin present in the capillaries may not be sufficient to produce clinical cyanosis. But when the latter *is* present, the amount of haemoglobin available for carrying oxygen is further reduced and oxygen want intensified. Cyanosis therefore *must* be prevented in anaemic patients if anoxia is to be avoided.

McCarthy (1941) has described signs, affecting the respiratory and circulatory systems, by which he considers anoxia may be recognized, irrespective of the presence or not of cyanosis. Unfortunately, however, in my experience these signs do not occur in minor degrees of anoxaemia, where their value would be greatest; they are almost invariably late signs, indicating that circulatory and respiratory depression is already profound.

Prevention of Anoxaemia

It would appear, therefore, that the only method of avoiding anoxaemia is by maintaining scarlet blood in all cases. Where, however, anaemia is known to be present before operation, or is produced during operation by blood loss or other means, then not only must cyanosis be prevented but an increased concentration of oxygen must be given, over and above that necessary to produce scarlet blood, to compensate for the reduced haemoglobin, for by this means an increased blood–oxygen concentration may be produced (Boothby *et al.*, 1939, 1940; Wood, Mason, and Blalock, 1940).

Clement, however, states that "it is impossible to produce narcosis (with this agent) in the majority of patients and still maintain a pink skin and scarlet blood" (p. 103). This conclusion has a profound bearing on the evaluation of nitrous oxide as an anaesthetic agent, for I would regard the maintenance of a pink skin and scarlet blood as essential in all cases. The prevention of anoxaemia is one of the primary duties of the anaesthetist, and I would submit that to avoid anoxaemia nitrous oxide must be used with great discretion, particularly in shocked or anaemic cases. "Agents are potent or impotent as their toxicity is great or small" (Gillespie, 1942). To increase the potency of a weak agent such as nitrous oxide by associating with it any degree of tissue anoxia, however mild, is in my opinion to employ a method whose toxicity to those tissues may well be lethal; for there is much evidence that, whereas the effects of anaesthetic agents on tissue cells (in the absence of anoxia) are recoverable, the effects produced by anoxia are irreversible. (While I consider abundant oxygen essential with any anaesthetic technique or drug, I doubt whether the advantages of nitrous oxide are great enough to justify the additional transport of the necessary nitrous oxide cylinders to all the various isolated theatres of war.)

Other methods of increasing the potency of nitrous oxide are available, and are to be preferred. I do not agree with Clement that by the addition of ether, for example, to the mixture "the benefits of gas-oxygen alone are largely sacrificed" (p. 103). I would rather submit the principle advanced by Lundy (1932)—of the use of a combination of agents or methods to decrease the toxicity of a single agent—as being a more rational principle on which to base anaesthetic practice. In my opinion, the addition of some supplementary agent to nitrous oxide anaesthesia confers a benefit to the patient in that it enables the anaesthetist to maintain anaesthesia in an atmosphere of abundant oxygen.

Summary of Conclusions

Nitrous oxide is a weak anaesthetic agent whose effects are often produced only in the presence of anoxia.

The recognition of anoxia being difficult or impossible in many cases, it is better to avoid it by increasing the oxygen content of the anaesthetic mixture.

Should this render anaesthesia with nitrous oxide difficult in any particular case, it is an advantage to the patient to add some supplementary agent, for reduction in the oxygen supply to "potentiate" nitrous oxide is never justifiable.

It follows that nitrous oxide anaesthesia is not as safe as is often supposed, and its application should be strictly limited.

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An important factor in the first phase of injury from cold, states Killian (*Zbl. Chir.*, 1943, No. 2), is the production of heat by contraction and tremors of the muscles. In the resynthesis of the lactic acid thereby formed, an important part is played by the phosphorylation which is controlled by the suprarenal hormones. If the suprarenal hormones are lacking, severe disturbances of muscular metabolism and cardiac metabolism must ensue. Exposure to cold for long periods results in the supplies of cortical hormones being used on account of muscular exhaustion. Since cortical insufficiency enters into the picture of shock and collapse, casualties showing these signs are specially liable to damage from cold. In the second phase of frostbite, where oxygen lack in the tissues is the dominant feature, there is not only an abnormal consumption of "cortin" but an actual lesion of the suprarenals. Cortin, Killian believes, seems to be justified in cases of extensive frostbite, especially those showing toxic symptoms.

MARCH FRACTURE OF THE METATARSAL BONES

BY

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March fracture, or spontaneous stress fracture, is most often seen in the metatarsal bones, but has been observed in others, including the femur (Peterson, 1942). This type of fracture was well recognized before and during the war of 1914–18. A number of articles have been published recording cases that have appeared during the present conflict.

A Series of Cases during Training

This communication records 20 cases of march fracture of the metatarsal bones that have occurred during the first five months of the training programme at a recruits' training station in the Royal Air Force. The training programme is in two parts. The first part, of three weeks' duration, is devoted mainly to disciplinary training; the second part, of five weeks, covers more advanced subjects, including those which are more strenuous, such as bayonet-fighting, unarmed combat, etc.

The number of recruits passing through the station during the period in which the fractures occurred was several thousand, so that the incidence is small. With three exceptions the patients were from 18 to 21 years of age. This cannot be taken as significant, however, as the age of the majority of the trainees falls within this age group. All the patients were of the highest medical grade (Grade 1) on entering the Service, and their physique was classed as normal in half the cases and medium in the remainder. No obvious foot deformity was observed in the patients. Their histories revealed that the majority, previous to entry into the Service, lacked regular exercise and were in occupations necessitating long hours of standing. Eight of the 20 had been in the A.T.C., in which they did drill from one to three times a week, for periods ranging from three months to two years. All the fractures occurred during the last five weeks of training.

The injuries were sustained during active exercise and were due to indirect trauma. One patient, however, sustained his fracture during a fall at football. His legs were tangled up with those of another player. This is the only case in which direct trauma may have been responsible. Of these 20 fractures, 10 developed during route marches, 2 while bayonet-charging, 2 at drill, and another at football as already mentioned; the remaining 5 could not be ascribed to any particular exercise.

It is usually stated that the onset of symptoms is insidious (Drummond, 1940; Krause, 1942). This was not the common finding in the present series. In 2 of the earlier cases the histories are incomplete, but of the remaining 18 the onset of symptoms was sudden in 12 and insidious in 6.

Pain, localized to the affected bone, is the chief symptom. This is felt on standing, and especially when on the toes. It causes the patient to limp and, when the second or third metatarsal bone is affected, to walk on the outer side of the foot. A sensation of stiffness of the toes is often experienced. This is presumably due to reflex spasm of the interosseous muscles. A few hours after the onset of pain some swelling, which pits on pressure, may be observed on the dorsum of the foot at the base of the toes. There is localized tenderness, but bruising has not been noticed in the present series. The right foot was affected in 10 patients and the left in 10 also. There were 15 fractures of the third metatarsal, 3 of the second, and 2 of the fourth. In the large series of cases analysed by Tobold (1903) and Jansen (1926) the fracture was found to occur more frequently in the second metatarsal bone.

Radiography in Diagnosis

In order to confirm the diagnosis of the early case first-class *x*-ray pictures are needed. In the present series two views of the foot were taken—an antero-posterior with the foot in the normal standing position, and another antero-posterior with the foot in the everted position, thus taking an oblique view of the foot. In a number of cases no fracture was to be seen in the antero-posterior view but could be seen in the oblique view. This is due to the fact that the earliest signs of fracture

of the metatarsal, which consist of a fine periosteal reaction with or without a small crack in the cortex of the bone, appear on the dorso-medial aspect. In 16 of the 20 fractures these early signs could be seen. Of the remaining 4, one was a comminuted fracture, another an impacted fracture, the third an oblique fracture of the shaft, and the fourth was not confirmed by *x* rays until five weeks after the onset, the early radiographs showing no fracture. Eleven of the fractures were at the middle of the shaft, 7 were about a quarter of an inch from the neck, 1 was at the neck and impacted, and 1 was an inch from the base of the bone. With the exception of the comminuted fracture and the oblique fracture, there was no displacement of the fragments of bone. The absence of shortening and angulation suggests that the force responsible for the fracture is not great enough to produce separation of the fragments to any appreciable extent and that the surrounding tissues are themselves little damaged and tend to hold the fragments in position.

The first radiograph, taken immediately after the onset of symptoms, may not show the early evidence of fracture, whereas the fracture may be seen in a second radiograph taken some 7 to 10 days later. In 3 patients of the present series this state of affairs existed. Between the first and second radiographs the only treatment given was strapping and light duty, the plaster method being used when the diagnosis was confirmed by the second radiograph. In a fourth patient the first *x*-ray film showed no fracture, but in spite of this plaster treatment was given for four weeks, and then a film was taken for the second time. This showed the fracture and the formation of callus.

Treatment

The treatment in the present series has consisted of a below-knee plaster, with a walking-heel attached, for approximately four weeks. The toes have been left free on the dorsal aspect and the ankle has been immobilized at a right-angle. Following this the patient has had two weeks' light duty, avoiding all vigorous exercise. At the end of the six weeks he has resumed full duty with the exception of excessive exercise and long marching. No residual disability has been encountered.

Discussion

The aetiology of the lesion is obscure. Jansen (1926) suggested that a reduction in the nutrition, caused by swelling of the interosseous muscles, made the metatarsal bones brittle. It has been suggested by Wilhelm (1941) that vitamin deficiency may play a part, but there is no definite evidence to support this. Moore and Bracher (1941) have drawn attention to the possibility of exercise other than marching being responsible. Krause (1942) believes that the mechanism is rhythmically repeated subthreshold mechanical insults acting by summation to a point beyond the capacity of the bone. It is now well recognized that the fracture tends to occur in recruits who have led inactive lives before entry into the Service. This must therefore be accepted as the predisposing cause. In addition, as the name implies, the facture usually is a result of marching, and some such form of exercise would appear to be the exciting cause.

The striking feature in the present series—a feature to which little attention has been drawn in the past—is the situation of the early signs of the fracture, in the *x*-ray film, on the dorso-medial aspect of the shaft of the bone. Inspection of *x*-ray photographs in articles on the subject also shows this situation of the early signs. This suggests that the exciting force acts in such a manner as to bend the bone in an outward and downward direction and so produce a tear of the periosteum and a crack in the cortex of the bone, first on the dorso-medial aspect.

The injury to the periosteum causes a reaction, which shows in the radiograph as a fine opacity by the shaft of the bone. This reaction and the actual break in the cortex may not be visible at this early stage. Later the periosteal reaction has increased and the interval between the fragments may be more definite as a result of some absorption of bone at the ends of the fragments at this point. This sequence of events offers an explanation for the apparent absence of the fracture in the first radiograph and its subsequent appearance in a second radiograph some days later. The periosteal action continues, so that after four weeks a spindle of callus may be observed around the shaft of the bone, centred about the fracture line, which may now be seen involving the whole width of the shaft. It is at this stage that the lesion may simulate a sarcoma in the film, and a definite hard swelling may be felt on the metatarsal bone. The swelling is not tender and there is usually no disability.

It is possible that the force which tends to bend the bone in an outward and downward direction results from muscular action. This force is probably brought into play during the action of marching when the weight is being transferred from one foot to the other. The affected foot is then in the dorsiflexed position and the plantar flexors of the toes and foot are contracting to give the springy movement as the weight is being transferred from that foot to the other. As Krause suggests, repeated strain on the shaft of the metatarsal may finally result in the fracture.

A reduction in the incidence of the lesion seems probable if, first, the training of boys before entry into the Service in such youth organizations as the A.T.C. is intensified with regard to the physical development; and, secondly, the training programme for the recruit is modified so as to reduce the amount of marching in the first two months of training. The marching programme should be carefully graduated, especially when other vigorous subjects are included in the syllabus.

Summary

Twenty cases of march fracture of the metatarsal bone in recruits are recorded and analysed.

The clinical findings are described and the *x*-ray appearances discussed.

It is suggested that the exciting force responsible for the fracture is supplied by the repeated muscular action of the plantar flexors of the toes and foot during the springy movement of walking.

Suggestions for the reduction of the incidence of this type of fracture are offered.

I wish to express my gratitude to Air Marshal H. E. Whittingham for permission to publish this article; to Wing Commander W. G. S. Roberts for facilities for investigating the cases; to Squadron Leaders R. J. Coto and C. Wilson for allowing me the opportunity of seeing the cases; and to Sgt. F. E. A. Blackman, M.R.S., and Mr. F. Newman for their excellent *x*-ray work.

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Medical Memoranda

Cardiac Failure treated by Mercurial Diuretics over a Prolonged Period

The following case may be considered interesting enough to warrant publication.

On Dec. 12, 1930, a farmer's wife aged 55 was visited on account of morning occipital headaches, giddiness on stooping, and dyspnoea on exertion, all of insidious onset over the past year. She weighed over 15 st., and had a large post-operative ventral hernia, since repaired under spinal anaesthesia. Her lips were mildly cyanosed. There was no oedema of the extremities. Her arteries were not unduly thickened and her pulse was regular in rhythm, of increased force, large volume, and high tension, while the rate was 92 a minute. Her blood pressure was 220/130 mm. Hg. Examination of the heart showed a forcible but localized apex beat in the sixth interspace outside the mid-clavicular line. Being so obese, accurate percussion of the cardiac dullness was impossible. A conducted ventriculo-systolic murmur was most audible at the apex, due to relative mitral incompetence. A moderate degree of basal bronchitis was present. The urine contained less than 0.025% of albumin, and no casts or red blood cells were present in repeated specimens. Her previous history was negative except for puerperal fever after one of her confinements 30 years earlier.

Her case was considered to be one of essential hypertension with insidious onset of cardiac failure. Reduction of weight, a salt-free diet with salt substitute, rest, and iodides were prescribed. She improved, and continued to be moderately well until Feb. 13, 1933, when I was called to her on account of intense orthopnoea. She was suffering from auricular fibrillation—the pulse rate being 138 a minute. Massive digitalis therapy was instituted, 4 drachms being given then and a further 2 drachms on the following day. After two more days digitaline Nativelle (digoxin *B.P.*) granules gr. 1/600 were given thrice daily, until on Feb. 22 the pulse rate had fallen to 69. It has since been maintained over the past 10 years between

65 and 85 when at rest by giving 5 to 6 granules a week and by watching carefully for signs of over- or under-dosage.

She remained well and was able to continue with her household and dairy duties until dropsy of cardiac type intervened in Feb., 1936. This was cleared by means of rest in bed, salt-free diet, and diuretin gr. 15 thrice daily, but it returned quickly in spite of perseverance with the treatment. It was, however, delayed in its severity until the end of May, when she was so badly swollen and so miserable as to necessitate her being kept sitting up in bed resting forward on her thighs. The oedema was extreme, and the end would appear to be not long delayed. Opiates were given for her relief, and had to be administered by mouth as she lived seven miles away. On May 30 I gave her 20 gr. of ammonium chloride to take in a mixture thrice daily, and on June 3 she received 1 c.cm. of salyrgan intramuscularly into the buttock. The diuresis was moderately profuse. On alternate days 1 c.cm. was continued, and with caution, for two more doses. On the fourth occasion 2 c.cm. was given—the ammonium chloride being also given, as before.

By June 24 she had received salyrgan thrice weekly in 2-c.cm. doses and the oedema had disappeared. The urinary output was examined, and always has been, at each visit. I found it necessary to continue thrice-weekly injection until Dec. 2. By that time it was considered necessary to give it only twice weekly. She had been allowed up gradually in August, until she was able to do her housework over eight hours daily, and has continued to do this ever since. From Dec. 5, 1936, to July 27, 1942, 2 c.cm. of salyrgan or mersalyl (B.D.H.) was given twice weekly with few exceptions.

The patient at this date decided to "retire" from active work and live more leisurely. Since then 2 c.cm. given weekly, and with occasional extra doses, has kept her oedema-free, except for a slight puffiness of the feet and lower legs. Altogether she has now had 680 injections—all but a very few being of 2 c.cm.

COMMENT

The only toxic symptoms that might be ascribed to mercury have been: (1) A "soapy" feeling in the mouth. This is almost constant, but there has never been any sign of stomatitis. The patient wears dentures, and so oral sepsis has not been present to help induce the condition. (2) Three slight attacks of catarrhal colitis have occurred, each lasting two to four days and each signified by griping pains on the left side of the abdomen and by tenesmus, with the passage of mucus usually tinged with blood. These attacks responded quickly to withdrawal of the diuretic for a week and the administration of 10 gr. of Dover's powder thrice daily for a few days along with a roughage-free diet.

There have been no signs of neuritis—her deep reflexes being maintained, in addition to there being complete absence of paraesthesia and tremor or of any mental disturbance or drowsiness. She has had frequent severe cramps in her legs about 48 hours after an injection. These were most marked when she was on a salt-free diet. When returned to a normal salt-containing diet these attacks became infrequent, and since receiving her injection once weekly have been altogether absent. It was noticed that it was wiser to allow a slight pitting of the ankles to remain at all times to prevent too much dehydration. These cramps are of the nature of stoker's cramp. The kidneys have shown no evidences of increased impairment over these years. The amount of albuminuria from passive congestion seldom exceeds 0.1%, and only an occasional hyaline or granular cast is found. Haematuria has been absent. Nausea has been complained of from time to time, but is usually attributable to the ammonium chloride, which, however, is required in this case as the diuresis is about halved without it. On rare occasions the nausea has been due to the onset of digitalis sickness.

It is interesting to note that the patient has at no time suffered from any signs of thrombosis—either arterial or venous. Of course her arteries are ideal, being free from obvious arteriosclerotic changes and probably from atheroma. Also no local reactions have occurred.

CONCLUSIONS

It would appear that there is little risk of any untoward symptoms of mercurialism arising from the prolonged administration of salyrgan or mersalyl (B.D.H.) even when given at such short intervals in cardiac dropsy, provided that elimination is not impaired by renal disease and that oral sepsis is not present.

There would seem to be no danger, or little danger, of thrombosis occurring provided that the blood vessels are reasonably healthy.

Cramps may be avoided after injection by giving sufficient salt in the diet and by avoidance of over-dehydration.

No local reactions should occur if injection is given deeply and with a dry needle.

It is worth while to institute treatment even when the patient is apparently *in extremis*, as many years of moderately active life may be enjoyed.

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Reviews

A TEXTBOOK OF MIDWIFERY

Textbook of Midwifery. By Wilfred Shaw, M.D., F.R.C.S., F.R.C.O.G. (Pp. 588; illustrated. 21s.) London: J. and A. Churchill. 1943.

It is perhaps natural that students should encourage a popular teacher to write a textbook on the subject he teaches. It is certainly a good thing that not all such encouragement bears fruit in the shape of new textbooks on this and that, for unless each has a real contribution to make it has no valid excuse for its existence. There is nothing revolutionary in Mr. Wilfred Shaw's new work and little to distinguish it from other textbooks on midwifery, but none the less it is assured of a general welcome, for its earlier and sister volume on gynaecology has given the author a well-earned reputation as a teacher which extends far beyond the bounds of St. Bartholomew's and its students.

Mr. Shaw's obstetrical teaching is based on three sound principles. The first is that the majority of women deliver themselves spontaneously without much trouble; the second is that great clinical judgment is required to decide if and when interference is indicated; the third is that if any obstetrical manipulation is carried out it calls for dexterity and operative skill of a very high order. As would be imagined from these the practice of midwifery has been described largely from a practical and clinical basis. The book is introduced by a chapter which the author states is intended to illustrate his attitude to the practice of midwifery. It is a creed based on genes, meioses, and the blastopore, and the student may have to read it more than once before he understands its meaning. If he does need to do so he will not be the loser, because he will begin his studies with the oft-repeated assurance fresh in his mind that unnecessary interference is the greatest sin in obstetrical practice.

The book is arranged on conventional lines. There are eight sections dealing with physiology of reproduction, clinical midwifery, complications of pregnancy, abnormal labour, abnormalities of the amnion, placenta, umbilical cord and foetus, management and diseases of the newborn, operative midwifery, and results and statistics. Excellent illustrations are distributed throughout. A minor criticism is that here and there the reader is left wondering what Mr. Shaw believes and practises. Unless this practice is made clear it is of little help to the student to be told that some authorities advise episiotomy in breech deliveries or that many obstetricians have no anxiety in performing a Caesarean section after a surgical induction of labour by means of the Drew-Smythe catheter, to quote only two examples. Dogmatic teaching is often dangerous, but it is less so in clinical medicine than are the vague utterances of the academic tutor. The student must learn how he is to handle clinical problems when they arrive, and he can measure the value of his teacher's dogma by the results he achieves.

Considerable emphasis is given to radiological examination of the pelvis—even, some would think, at the expense of instruction on when and how to examine a pelvis clinically. True, it is admitted that "there is much to be said for the old-fashioned vaginal examination by an experienced obstetrician," and it is also admitted that perhaps radiological methods may lead to unnecessary interference. On the other hand the student is informed that radiography is the only scientific method of pelvic measurement without being reminded that obstetrics is an art and not a science. He is taught that a floating head is always an indication of disproportion, and one finds it difficult to reconcile this with either fact or the principles so clearly defined in the introduction. If the student believes that the high head always indicates disproportion and that the only scientific means of investigating the pelvis is by radiography, then the stage is set for interference, and plenty of it. The discussion on the treatment of lesser degrees of disproportion includes an excellent account of trial of labour. Many of Wilfred Shaw's colleagues will disagree with his views on the methods of terminating pregnancy. To advise abdominal hysterotomy from the 12th to 18th week and vaginal manipulation from the 18th to 28th week, when the uterus is notoriously inert, is strange indeed. A surprising

omission is the lack of reference to the importance of the Rh factor in obstetrics.

Major place in this review has been given to criticisms which for the most part are levelled against details in the text. We venture to prophesy that the next edition of this book will be considerably revised and correspondingly improved.

AUTHORITY IN MEDICINE

Authority in Medicine: Old and New. By Major Greenwood, D.Sc., F.R.C.P., F.R.S. The Linacre Lecture, May 6, 1943. (Pp. 32. 1s. 6d.) Cambridge: The University Press. 1943.

Though Linacre's name is venerated his memory is but shadowy. Nevertheless when Prof. Topley said of him in the Linacre Lecture for 1940 that "the only reason he did not do more harm than he did was because the times were too much for him" the audience were mildly shocked; the offence in Prof. Topley's eyes being that Linacre's object was to diffuse accurate knowledge of the ancient treatises, especially of Galen, which would merely put "a brighter polish on the fetters that hold medicine in thrall"; in other words, an authoritarian wished to impose a still older authority on us. Prof. Major Greenwood in his Linacre Lecture for 1943, on "Authority in Medicine: Old and New," questions the justice of this criticism, and starts by going back to Galen himself, who was "almost comically unlike one's idea of an oracle or a prophet,' though, like the Hebrew prophets, he had "an extremely low opinion of most of his contemporaries and an immense command of the vocabulary of vituperation . . . he was for ever giving reasons, he was sometimes witty, often abusive, but always arguing." His views on hygiene were sound, his medical psychology was in advance of his age. There was in Linacre's day "a Galenical faith, just as there is now a Marxian faith, and medical students at the end of the fifteenth century were no more familiar with the works of Galen than young English sectaries of Marx with *his* opinions; probably less." It is not Galen who should be blamed, but the misuse made of his writings in an age when, largely due to ecclesiastical influence, the spirit of authority was supreme. It is the fate of great teachers to start as revolutionaries and to become the idol of reactionaries.

Authority there must be; the medical curriculum, lengthy as it is, would be inordinately prolonged "if every student verified experimentally textbook statements." With us a special authority attaches to the experimental method, but we may overrate its logical value. In one respect there is a change: biologists no longer despise the statistical method, which both these lecturers introduced into epidemiology. This enables Prof. Greenwood to give us an astonishing and rather consoling piece of information—the present loss of young Englishmen between 20 and 25 by military violence is 7,500 less annually than that of a similar age group in peacetime 100 years ago. The lecturer then went on to discuss what he termed "the authority of intention." A few years ago, praise of scientific research for its own sake would have been thought platitudinous, but recently men whose contributions to science, pure and applied, entitle their opinions to respect have maintained that scientific research should be restricted to the betterment materially and morally of mankind; and the satisfaction of intellectual curiosity, having no relevance to this, if not immoral is no better than harmless amusement. They strongly advocate planned research under authority; those who dissent from this faith see danger to scientific freedom. For this, control could be ideal only if we attribute a superhuman prescience to the planners. On such a system "Mendel's interest in peas might have seemed frivolous," though it has provided the scientific basis for genetics. It is indeed a commonplace of scientific history that discoveries made for the satisfaction of pure intellectual curiosity have often proved materially valuable to mankind.

Prof. Greenwood proceeded to a triumphant vindication of Galen's *De Temperamentis* by showing its modern application, among other things, to intelligence testing. "So the wheel has come full circle; temperament is an object of quantitative study. Galen may look down from Elysium . . . with a grim smile of approval." The lecturer concluded an address worthy of the tradition of his office by a glowing and well-deserved tribute to the work of the late Sir Walter Fletcher in organizing medical research unhampered by political considerations.

RADIOLOGY IN 1942

The 1942 Year Book of Radiology. Diagnosis: Edited by C. A. Waters, M.D.; Associate Editor, W. B. Firor, M.D. Therapeutics: Edited by Ira I. Kaplan, M.D. (Pp. 496; illustrated. 27s. 6d.) Chicago: The Year Book Publishers, Inc.

In spite of the difficulties resulting from the war the standard of excellence of previous years has been well maintained in the *1942 Year Book of Radiology* under the joint editorship of Drs. Waters, Kaplan, and Firor. Radiodiagnosis occupies the first 265 pages and radiotherapeutics the remainder.

There are numerous articles of great interest in the diagnostic section. In the section on the osseous system, mention may be made of a method of removal of iodized oil after myelography in cases of protruded intervertebral disks, and of a survey by Thomas of vascular tumours of bone. In the respiratory section an account is given of Kerley's work on pulmonary changes in erythema nodosum, and other articles of interest are on pulmonary coccidioidal infection, toxoplasmosis, and mass radiographic surveys of the chest. In the cardiovascular section the attention is caught by the work of Barclay and his co-workers on the foetal circulation, and Nelson's method of abdominal arteriography is given. A number of rare gastro-intestinal lesions are recorded, including haemangioma, syphilis, and Hodgkin's disease of the stomach, annular pancreas constricting the duodenum, and two cases of double gall-bladder. Gutierrez contributes an admirable survey of large solitary cysts of the kidney.

Although no epoch-making discoveries fall to be recorded in radiotherapy the section on that subject continues to give a complete survey of the work done in radiobiology and in radiotherapy of the various systems of the body. Once again the Year Book of 1942 is to be recommended to all radiologists as an abstract of the year's work in both branches of the subject.

Notes on Books

BALLENGER'S textbook *Diseases of the Nose, Throat, and Ear: Medical and Surgical* has become a well-established institution, which keeps itself alive by the regular issue of well-revised new editions. The eighth retains all the excellent features of its predecessors, and although it contains nearly a thousand pages has the advantage that the new shape and style make it lighter and easier to handle. There is, however, one chapter, which might be called ancillary rather than essential in a medical sense—on the singing voice—wherein such extraordinary views are expressed that they surely require reconsideration by an expert on the subject. The section on the ear remains a brilliant exposition of the subject. Henry Kimpton publishes the book in England at 60s.

Young Citizen, by A. E. MORGAN, is published as a ninepenny Penguin Book. Prof. Morgan is an authority on literature and education, and in 1938 he was commissioned by King George's Jubilee Trust to survey the whole field of adolescent activities. His report, *The Needs of Youth* (Oxford), has become a classic, and this Penguin contains much of the material in a shortened form, together with an account of developments which have taken place since the war. Most of its content is fact, but his opinions are founded on long experience and keen observation. The book is a very handy introduction to the larger work, and indeed to the whole social problem of adolescence.

Denture Base Readjustment, by H. HIRSEKORN, is published by John Wright and Sons at 10s. 6d. It is the contention of the author of this small book that many worn-out and ill-fitting dentures with vulcanite or plastic bases can be made useful and comfortable again by relining them. There is no doubt that this can be done at times and may save the patient the cost of a new denture, but experience teaches that most dentures which are unsatisfactory are best remade from the beginning. The idea of using the old denture as a tray for a new impression is well known, but the author gives some helpful suggestions for the chairside technique and stresses the use of the old original gutta-percha for the purpose. This book is for the dental surgeon and mechanic; but the general practitioner is asked to advise on most things in heaven and on earth, and it is well for him to know that many ill-fitting dentures can be made comfortable.

The *Proceedings of the Cardiff Medical Society* for the session 1942-3 have been printed for the Society by William Lewis (Printers) Ltd. of Cardiff. The volume opens with Dr. A. W. B. Loudon's presidential address, and there are four other papers, including one on "The Mayos" by Mr. N. L. Barrett; also reports of clinical meetings and discussions.

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PSYCHIATRY AND SOCIAL MEDICINE

The emphasis recently placed on the social aspects of medicine by the creation of a chair in this subject at Oxford is reinforced by the disturbing revelations made by Titmuss that the rate of infant mortality among the poorer classes in this country was the highest in the civilized world between the two great wars. Such a shameful state of affairs—the death rate in Glasgow is higher than it is in Tokio—should not be tolerated if we are to hold up our heads. But it would be quite wrong to regard this as primarily the responsibility of doctors. As Lord Dawson pointed out in his Presidential speech to the British Medical Association on Sept. 22, the medical profession in its concern about such things got little support from the Government until only a year or two before the war. Not doctors by themselves, but only doctors working under the auspices of an enlightened health policy which recognizes the enormous importance of environmental conditions as factors in disease, will ever produce the necessary results.

There is one branch of medicine in particular where the influence of social factors has been clearly perceived in practice as well as in theory for a long time. Psychiatry and social medicine have a very large mutual overlap, as was recognized by the Royal College of Physicians of London in issuing together on Oct. 29 the interim reports by its special committees on these two complementary subjects, one of them under the chairmanship of Prof. D. K. Henderson, whose annual reports from the Royal Edinburgh Mental Hospital have consistently stressed the social aspects of mental illness. The day is long past since psychiatry was regarded as the study of diseases; in fact alone of the medical disciplines has psychological medicine adopted in its very terminology the notion of "reaction types." Even in the largely constitutional disorders the share of the environment was recognized so that it became no longer customary to speak of a mental disease but of a "schizophrenic" or "manic depressive" type of reaction. It was even conceived that some mental disorders are the outcome of progressive maladaptation, over a period of years, to the social environment. This has long been the point of view of the psychiatric philosophy designated by the rather unattractive term "psychobiology," or the science of the individual personality conceived in terms of his heredity, his history, and the environmental influences to which he has been subjected. Much may be forgiven aesthetically to a terminology so practically comprehensive. But it has been in connexion with the so-called "functional nervous disorders," the "neuroses," or, more technically, the psychoneurotic forms of reaction, that social considerations have forced themselves upon the psychiatrists' attention, and this not only because of the Freudian discoveries of the part played by the early family setting in providing the foundation for neurotic developments later, but from the repeated "common-sense" observation of the share of unsatisfactory personal relationships to other people and to contemporary circumstances in producing psychological ill-health. Faced with such problems, psychological medicine found itself in need of a special kind of social worker, the psychiatric social worker, trained not only in social work but in the significance of personal factors in the production of ill-health.

In the domain of physical disease itself psychological medicine, as the name implies, has learned to look for some of the causes of such conditions as asthma, some skin diseases, duodenal ulcer, hyperpiesis, and the like, not only in diet or endocrine disorders or infections but in personal conditions producing anxiety and insecurity and all the other painful emotions to which humanity is a prey. It follows that psychiatry is especially interested in schemes for "rehabilitation" or restoration of the individual into useful society. The report of the medical director of the Cassel Hospital for Functional Nervous Disorders for the year 1942 is largely devoted to this topic. Dr. C. H. Rogerson points out that the definition of rehabilitation given in the Tomlinson report is very unrepresentative of the attitude of modern medicine: "Rehabilitation in its strictly medical sense means the process of preventing or restoring the loss of muscle tone, restoring the full functions of the limbs, and maintaining the patient's general health and strength. (This is apart from special rehabilitation treatment required for particular diseases such as tuberculosis.)" The Cassel Hospital report seeks to clothe this still meagre skeleton with something at a higher level of integration than muscle and peripheral nerve.

The period of transition from hospital, especially from a psychiatric hospital, to real life is a crucial one, for which few special arrangements exist to-day. The Cassel Hospital report suggests an intermediate type of hospital or hostel largely run by the patients, supervised by a trained nurse, and with only occasional medical supervision, because such a place would be principally concerned with occupation and recreation as a step towards the outer world. It is conceivable, however, that the extended use of psychiatric social workers in the community in paving the way for the patient in his home and at his place of employment might make some of this organization superfluous. The report also stresses the importance of work in maintaining the stability of the individual, not simply because of the definite rewards of work but because of the interest it may bring and because of the degree to which anyone's self-respect is involved in having a job. The report points out that it is probable that war work has been of appreciable benefit to ex-patients who in peacetime would probably have relapsed in the absence of a job, and it is reasonable to assume that it may have prevented other people falling ill. The possibility of using existing organizations to help the resettlement of ex-patients in civil life is illustrated by experience of the usefulness of Labour Exchanges working in collaboration with the Cassel Hospital, and also of the value of a sympathetic attitude on the part of employers. Some psychiatric clinics have in the past

invoked the aid of vocational advisers so as to ensure that the patient will be placed as suitably as possible in industry. The experience of the Cassel Hospital suggests that the existing Labour Exchanges would be satisfactory in this way, especially as they have the advantage of being not only able to advise but able to produce an actual post of employment. There will, however, always be a proportion of people in whom more specialized vocational advice will be desirable, in which the psychiatrist must sometimes take his share of responsibility.

It is a relief in these days of expensive schemes to find that the report envisages the better use of existing facilities so far as possible, rather than the creation of new ones. Even the suggestion of an intermediate hostel might be met by ensuring that the staff of existing homes and hostels had some training in the social aspects of psychiatry. The new National Provisional Council for Mental Health has in fact begun educational work of this general kind in connexion with children's homes, and there is every reason to suppose that it can be extended to those having the care of adults. In similar vein the report deprecates the creation of "rehabilitation" specialists among doctors, pointing out that the more a doctor can carry responsibility right through a case the better. It suggests that specialism of this kind might be confined to ancillary services, such as occupational therapy, instruction in physical training, and specially trained nurses in charge of convalescent homes. The report is a stimulating effort to integrate the specialized services that can be given by a special hospital with the needs of the community. A psychiatric hospital is no longer simply an "asylum" or retreat; it is a "hospital" in the ancient sense—a guest house for those ultimately on their way back to real life.

CHEMOTHERAPY OR SERUM FOR SCARLET FEVER?

What is the appropriate special treatment for the acute stage of scarlet fever? Is it chemotherapy or serum, or both, or none? It is generally agreed that chemotherapy alone has no effect on the primary toxic phase, but there is some difference of opinion as to its effect on the incidence of complications. Streptococcus antitoxin, on the other hand, given in adequate dosage and by an appropriate route, undoubtedly neutralizes the initial toxaemia and so may indirectly prevent or reduce complications. In a discussion[1] at the Fever Hospital Medical Service Group of the Society of Medical Officers of Health in January, 1939, the consensus of opinion as summarized by Mitman was: "For mild cases treated at home, no antitoxin or sulphanilamide; for mild cases admitted to an open ward, antitoxin intramuscularly; for severe cases, antitoxin intravenously; for complications, sulphanilamide." In the intervening period antitoxin has been considerably improved by developments in the protein-digest method of concentration, and the potency and range of chemotherapy have also been strengthened, notably by the introduction of sulphathiazole.

Mitman's summary, *mutatis mutandis*, would still probably meet with general acceptance in this country. The opposing view—that sulphanilamide and not serum should be adopted as a routine treatment for scarlet fever—has been put forward by Neukirch and his colleagues[2] from Copenhagen, as a result of a study of some 300 cases so treated in 1940, with serum-treated and untreated controls. The type of scarlet fever was mild. Sulphanilamide was given for eight days from admission, in dosage varying from 1.2 to 3.6 g. daily according to age. The serum used was not streptococcus antitoxin; it was an "anti-scarlet fever streptococcic serum" prepared by the State Serum Institute "in such a manner that it has a high and polyvalent content of antitoxin and bacterial antibodies." This product seems therefore to be equivalent to a mixture of antitoxin and of streptococcus serum, and its potency in antitoxin units is not stated. Further, it was not a concentrated but a "native" or natural serum, and was accordingly given in dosage much higher than is used in this country—20 to 60 c.cm. intramuscularly or intravenously. (As a corollary it should be noted that no less than 63.9% of the serum-treated patients suffered from serum sickness and 1% from serum shock.) Such a serum is very different from the antitoxin now in use in this country and in the U.S.A. The main results of the study were: (1) except in the low age group 0–3 years (an important exception) sulphanilamide significantly reduced the bacterial complications as compared with the controls, and especially otitis and mastoiditis; (2) the "anti-scarlet fever streptococcic serum" was ineffectual in preventing complications. In assessing their results the authors have paid little regard to the different aetiology of early and late bacterial complications of scarlet fever treated in open wards. It is now well known that after the first two or three weeks bacterial "complications" under these conditions are nearly all ward reinfections.[3] Some degree of protection against them is probably afforded by the use of sulphanilamide, but only during the period of its administration or a day or two thereafter—that is, in the case of this study, ten days at most from admission. Similarly with serum some protection is afforded for two to three weeks from the date of injection, at all events with antitoxin. In this study the average duration of hospitalization was 33.2 days in the sulphanilamide series and 34.8 in the serum series. With both treatments, therefore, the patients would be vulnerable to ward infections during at least the later weeks of their stay in hospital, and this constitutes an unassessed factor which might operate in variable degree in the two series. Nevertheless, there seems to have been a significant fall in the incidence of otitis in the age group 4–14 years in the sulphanilamide series, where it reached the low level of 1.0% of 200 patients, compared with 8.9% of 192 patients of these ages in the serum series. The figures are rather small, however, and they are more favourable to sulphanilamide and less favourable to serum than those obtained by the generality of observers.

Serum or sulphonamide treatment of scarlet fever in hospital constitutes only one factor in the prevention of complications. Other factors of paramount importance are (1) the control of streptococcal and other infections in a

[1] *Lancet*, 1939, **1**, 327.

[2] *Acta med. scand.*, 1943, **13**, 11.

[3] Allison, V. D., and Brown, W. A., *J. Hyg.*, Camb., 1937, **37**, 153.

ward full of highly susceptible young children, and (2) the shortening of the period of isolation of uncomplicated cases down to three weeks or less with the same object. The former problem can be attacked in various ways, but in practice is still unsolved. The latter has been shown to be practicable when the disease is mild, even with non-serum-treated cases,[4] but is most easily achieved when antitoxin is given in effective dosage in the acute stage. The combination of effective antitoxin by the intravenous or intraperitoneal route,[5] or in large doses by the intramuscular route,[6] with a short isolation period of 2 to 3 weeks has produced in several large and controlled series a significant reduction of complications, including otitis media. Sulphonamides are auxiliary to antitoxin and their exact role is still unsettled. Their prophylactic use, if the effect is to be complete, involves a period of administration not merely of eight days but of several weeks, as Neukirch and his colleagues indeed point out. This is a rather formidable undertaking; a close watch has to be maintained to avoid serious toxic effects, and there is the disadvantage that when a bacterial complication actually occurs its effective treatment by sulphonamides may be debarred. For these reasons sulphonamides are perhaps best employed at present in the immediate treatment of bacterial complications as soon as they appear. There is no clear evidence that better results can be obtained in hospital-treated scarlet fever than by the combination of (1) a potent concentrated antitoxin in the acute stage, (2) sulphonamide treatment of bacterial complications at their earliest appearance, and (3) a period of isolation of three weeks or less for uncomplicated cases.

TREATMENT OF EXPERIMENTAL HYPERTENSION

The lowering of experimental hypertension in dogs after the injection of renin was reported by Wakerlin and Johnson in 1941,[7] and they have now described further experiments the results of which deserve attention.[8] In their first paper they showed how the blood pressure of their dogs had slowly returned to normal levels during a series of daily intramuscular injections of partially purified hog renin. Now they report that after the cessation of the injections the blood pressure slowly returned over a period of months to its previous hypertensive levels, but in three out of four dogs it was possible to lower it again by a second course of injections. Similar treatment for three months before and three months after constriction of the renal arteries prevented a rise in blood pressure in six of fifteen dogs; ordinarily the operation is 99% successful. The effect was permanent in some cases, but in others the blood pressure slowly rose after the end of the treatment. The mechanism of these prophylactic and therapeutic effects is not apparent, and it may rest on substances other than renin. Extracts of liver and inactivated renin preparations were without effect, but the renin extracts which were used were far from pure, and it may well be that in the process of rendering renin inactive another principle is also destroyed. Antirenin activity was demonstrated in the serum in some cases, but it is improbable that its presence is the explanation, because there was no constant relation between the times of its appearance or disappearance and the changes in blood pressure. Moreover, it appeared in dogs which became hypertensive and was not found in others which did not. Discussion of other hypotheses will have to wait on confirmation and expansion of these experimental results. There are many points which suggest that the method may finally be of clinical therapeutic value if the first successes are confirmed. The dose of extract is the equivalent of one gramme of fresh kidney cortex per kilogramme of body weight per day, which is small compared with that used in other therapeutic attempts. The intramuscular route is easier than the intravenous. There are no toxic effects; appetite in the dog remains good, weight constant, and there is no change in the urine or in the blood urea. The beneficial effect persists for a considerable time after stopping the injections. Despite this, much experimental work needs to be done in animals before the treatment is applied to man, and, though it is full of promise, high hopes of its clinical value would be premature.

[4] Gordon, J. E., and Badger, G. F., *Amer. J. publ. Hlth.*, 1934, **24**, 438.
[5] Banks, H. S., *J. Hyg.*, Camb., 1933, **32**, 282; *Lancet*, 1936, **2**, 559.
[6] Ronaldson, G. W., *Clin. J.*, 1937, **66**, 461.
[7] *J. Amer. med. Ass.*, 1941, **117**, 416.
[8] *Amer. Heart J.*, 1943, **25**, 1.

ALCOHOL AND AVITAMINOSIS

The nineteenth Norman Kerr Memorial Lecture, under the auspices of the Society for the Study of Inebriety, was given by Dr. A. Ninian Bruce, his subject being "Alcohol and Avitaminosis." The lecture was a masterly discourse, addressed largely to a lay audience, on the recent contributions of medical research to knowledge of the effects of alcohol on man. Dr. Bruce recalled that the direct action of alcohol was first described in 1787 by Lettsom in a paper to the Medical Society of London. The action on the nerves was to create what Lettsom called a neuritis. For many years it was accepted that the only action of alcohol was a direct one on the tissue cells containing fat. The nerve cells were particularly rich in certain fatty substances, and as alcohol passed through them it was absorbed in the lipoid matter, thereby disorganizing the cell function. With the work done on the isolation of vitamins—substances which the tissues could not synthesize and which acted as catalysts in helping ordinary food factors to be utilized—attention was drawn to the indirect action of alcohol. People with acute alcoholism had been found suffering from beriberi or pellagra, or both. The neuritis in beriberi appeared to be identical with that in alcoholism. In an American experiment a number of patients suffering from alcoholic neuritis were taken; some of them were continued on the same large amount of alcohol as they had been taking before, and others were deprived of alcohol; both groups were given large quantities of vitamin B, and both recovered at the same rate. These patients owing to their consumption of alcohol had begun to develop stomach trouble and had "gone off" their food, ending by replacing food with strong drink, so that they were living upon alcohol, and were actually suffering from a deficiency disease due to a disturbance by alcohol with the intake of normal food.

One of the special troubles known to occur in chronic alcoholism was a liability to serious heart affections, with sudden death from heart failure. This was also the special characteristic of the beriberi cases. The withholding of vitamin B_1 not only deprived the nerve tissues of something they needed but also had an effect on the cardiac or cardiovascular system, and there was now recognized a special form of heart trouble entirely due to the lack of vitamin B_1 and irresponsive to ordinary heart drugs; this occurred in people who, whether from poverty or alcohol, were deprived of it. The vitamin had a direct effect on metabolism owing to its catalytic action. The question

whether alcohol was a food opened up a controversy, but alcohol did not contain any vitamin and in no way helped to store up energy in the tissues. It had to be burned up in the tissues in the same way as carbohydrates. The oxidation of sugars to give the tissues a regular supply of energy took place in a number of stages. At the end of the process lactic acid was formed and was broken up by catalytic action into the simpler form of pyruvic acid, beyond which oxidation could not be carried further. If there was an absence of vitamin B the process of normal carbohydrate oxidation appeared to be interrupted at about this three-carbon-molecule stage, resulting in the metabolic disturbances and the abnormal functioning of the nerve cells seen in deficiency diseases.

Dr. Bruce ended his lecture by giving a definition of life in biochemical terms as any molecular system which could metabolize itself and was able to increase its molecular energy. The "life stuff" might be said to consist of a series of molecular systems working in harmony with each other. In order that those systems might remain in existence dynamically they required in infinitesimal amounts a large number of additional substances or factors. Among these substances were the vitamins which must play their part as catalysts in the continued existence of the "life stuff." When this was realized it would be seen how delicately life was poised, and how a powerful agent such as alcohol by interfering with this fragile mechanism rapidly brought about serious instability.

BLOOD IRRADIATION THERAPY

X rays and ultra-violet light are widely used in medical treatment, and attempts have lately been made to replace direct exposure, which may be inconvenient, by the administration of substances which have themselves been activated by exposure to the rays. The rationale lies in the fact that the energy state of a molecule can be altered by irradiation, as, for example, by simple heating. In regaining its original state the molecule then produces an emanation which may be similar to that which activated it. In a rather different way, by bombardment with highly charged particles in the cyclotron, it is possible so to alter the phosphate ion, for example, that it itself becomes radio-active. Irradiated sodium phosphate has been used in the treatment of leukaemia, and it is likely that the distant changes observed after direct irradiation of the leukaemic spleen are brought about in the same way, some molecules in the spleen being activated by the rays and then carried in the blood to distant organs. The difficulty of carrying out running repairs to *x*-ray plants in wartime and the fact that the cyclotron is not available for general use make the treatment of these patients a perpetual problem. Eidenow's[1] account of the effect of giving the gas radon to rats and rabbits by the intravenous route is therefore of current interest. He describes a simple method of dissolving an amount of radon of known radio-active power in a few millilitres of citrated blood. He gave this radon solution intravenously to the animals in lethal and sub-lethal doses, and carried out frequent blood counts until either death or recovery took place. Eidenow observed an initial leucopenia, followed by a slight leucocytosis in the animals which survived. In the fatal cases there was a progressive leucopenia, and the changes at necropsy could not be distinguished by him from those found when a lethal dose of radium had been applied as a plaque to the skin. Given a supply of radon, this is a straightforward technique apparently capable of quantitative control. Its applicability to human beings might repay investigation at the present time.

Another type of irradiation therapy is described by Miley,[2] who used a machine known as the "Knott haemo-irradiator," by means of which it was possible to transfuse patients with blood which had been exposed to ultra-violet light a few moments previously. He remarks that ultra-violet rays are bactericidal *in vitro*, and can detoxicate snake venom, diphtheria toxin, and a number of other poisons, and claims that irradiated blood has a similar effect. He tried his treatment on a number of patients with chronic and acute sepsis, some of whom had failed to respond to sulphonamide therapy, and, on the basis of relatively few observations, records bactericidal, detoxifying, vaccine-like, and de-photosensitizing effects. There are many clinicians who hold the belief that "septic patients" benefit from small transfusions of fresh blood, and injections of whole blood have been used in a variety of septic and allergic states A careful reading of Miley's paper does not convince one that the blood is any more effective for being exposed to ultra-violet irradiation or that makers of scientific apparatus could properly be employed in wartime in manufacturing "haemo-irradiators."

1 *Brit. J. Radiol.*, 1940, **13**, 357.

DICUMAROL AND SALICYLATES

Analysis of the chemical degradation of the anticoagulant drug dicumarol [3, 3′-methylene-bis-(4-hydroxycoumarin)] shows that it gives rise to salicylic acid. Moreover, a study of the physiological activity of various analogues of dicumarol has revealed that only those compounds show anticoagulant action which theoretically might yield salicylic acid or an o-hydroxybenzoic acid derivative on degradation. Link and his colleagues[3] have now gone on to show that when single doses of salicylic acid are administered either by mouth or intravenously to rats maintained on a basal artificial ration low in vitamin K a temporary hypoprothrombinaemia can be induced, comparable in all respects to that caused by 3, 3′-methylene-bis-(4-hydroxy-coumarin). They also indicate that these observations are reproducible in man, even when the diets are not restricted. The significance of the results in clinical medicine is not yet clear. The production of haematemesis by aspirin is generally agreed to be due to local irritant action on the gastric mucosa.[4] Apart from this, the occurrence of haemorrhagic phenomena in patients under treatment with salicylates must be rather rare. More important, perhaps, is this new approach to the poorly understood problem of the beneficial therapeutic action of salicylates. It is tempting to think that an anticoagulant might prevent the formation of fibrinous nodules and vegetations; but this seems unlikely, for dicumarol has proved wholly unsuccessful in subacute bacterial endocarditis, and there is little evidence that salicylates hinder the formation of nodules and vegetations in acute rheumatism. It is perhaps more to the point to note that both the salicylates and cinchophen have a toxic action on the liver. Hench[5] has maintained for some years that chronic arthritis is relieved during an attack of jaundice, and perhaps one day we may find a unity in these therapeutic and toxic phenomena.

The next session of the General Medical Council will open on Tuesday, Nov. 23, at 10 o'clock, when the President, Sir Herbert Lightfoot Eason, will take the chair.

2 *Arch. phys. Therap.*, 1942, **23**, 536.
3 *J. biol. Chem.*, 1943, **147**, 463.
4 *British Medical Journal*, 1943, **1**, 714, 768; **2**, 117.
5 *Ann. Intern. Med.*, 1934, **7**, 1278.

EIGHT YEARS' EXPERIENCE OF A MINIATURE STATE MEDICAL SERVICE

BY

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JOHN ORR, M.B., Ch.B.

It has seemed to us appropriate, in view of the attention now being given to the establishment of a comprehensive medical service and the controversy arising therefrom, to give a brief account of the whole-time outdoor medical service, functioning in Glasgow, of which we are members.

This service was brought into being in 1935 on a whole-time basis when the industrial depression threw very large numbers of persons on the Poor Law, and it was to the Poor Law that they had to look for medical attention and hospital treatment. It may be explained that, under the Local Government Act of 1929, the powers and duties of the then Poor Law authorities were transferred to the local authority, which in turn remitted the hospital and medical services so transferred to the Committee on Health, so that the outdoor medical service developed as a function of public health. Steps were taken in 1936 to remodel the former part-time service, to provide it with new and up-to-date clinics, and so appoint a whole-time staff of doctors and nurses operating at and from 13 clinics throughout the city. The following is a brief account of the staffing, functions, and administration of the medical service thus established.

Functions and Administration

Growth and Staffing of the Clinics.—By 1940 the 13 clinics, most of them in new *ad hoc* buildings, were staffed by 30 whole-time district medical officers, 26 nurses, 27 female clerks, and 15 dispensers; in addition there were 9 part-time district medical officers —making a staff of 107 in all. The duties comprise medical examination and treatment at these centres, along with domiciliary treatment of the patients eligible under the scheme, while the services of the nurses are available at the clinics and for visiting patients at home. The number of doctors attached to and working from each centre varies from one to four.

Scope of the Service.—The medical facilities provide a continuous 24-hours service for seven days a week. Four members of the staff undertake only evening, night, and week-end duties for periods of three months in rotation. Thus all enjoy a degree of social freedom unknown to those of us who were formerly in general practice. It may be useful to give the following table showing the manner in which these rosters are arranged:

Roster for Evening, Night, and Week-end Duty during April, May, and June, 1939

No.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Day off	p.m. 5 – p.m. 11	p.m. 5 – p.m. 11	p.m. 5 – p.m. 11	p.m. 5 – p.m. 11	p.m. 2 – p.m. 11	p.m. 2 – p.m. 11
2	p.m. 5 – p.m. 11	Day off	p.m. 5 – p.m. 11	p.m. 5 – p.m. 11	p.m. 5 – p.m. 11	p.m. 6 – p.m. 11	p.m. 4 – p.m. 11
3	p.m. 5 – p.m. 11	p.m. 5 – p.m. 11	Day off	p.m. 11 – a.m. 9	p.m. 11 – a.m. 9	p.m. 11 – a.m. 9	p.m. 11 – a.m. 9
4	p.m. 11 – a.m. 9	p.m. 11 – a.m. 9	p.m. 11 – a.m. 9	Day off	Day off	p.m. 12.30 – p.m. 6	a.m. 9 – p.m. 4

No. 1, Dr. A., starting Saturday, April 1, 1939, 2 p.m.–11 p.m.
No. 2, Dr. B., „ „ „ 6 p.m.–11 p.m.
No. 3, Dr. C., „ Friday, March 31, „ 11 p.m.– 9 a.m.
No. 4, Dr. D., „ Saturday, April 1, „ 12.30 p.m.– 6 p.m.

During the week starting Monday, April 3, No. 1 becomes No. 2, No. 2 becomes No. 3, No. 3 becomes No. 4, No. 4 becomes No. 1; and so on each succeeding week until June 30 (or such date as may be decided upon later).

During the summer holiday months this arrangement is suspended, the medical officers undertaking evening, night, and week-end duties in a rota in addition to their normal day as well as providing relief one night each week to their colleague who has been delegated to overnight hours. The system is made doubly secure by a reserve medical officer being available outside normal working hours. On the occasion of public holidays the clinics are closed and a skeleton medical and nursing staff meets the urgent demands of the community, and does such revisiting as has been notified by district medical officers to the central office as being desirable.

Services at the Clinics.—The clinics provide adequate consulting and treatment facilities, with waiting-room, clerical accommodation, and nurses' room, along with a dispensary and waiting-space for patients having their prescriptions dispensed. The principle underlying this arrangement is, of course, to assist the medical work by providing the doctor with the three essential requirements—namely, the services of a nurse, a clerk, and a dispenser. In the construction of clinic premises there are two cardinal points which might with advantage be stated. In the first place, where considerable numbers of patients are dealt with, waiting-room accommodation must be generous, as many patients attend with relatives and friends. This applies even although the staff may be large and the work is carried out expeditiously. Secondly, the clinic should be so designed that circulation of patients between entrance and exit is ensured, crossing and recrossing being avoided. The drug dispensary or pharmacy should be situated at the exit. If separate entrance and exit cannot be arranged, then attention should be paid to the provision of corridors of adequate width.

Nursing Service.—It was realized that in domiciliary treatment the work of the medical officer would be incomplete and ineffective without the assistance of nurses. They are engaged on the same basis as health visitors, and all recent entrants possess the health visitor's certificate, which provides them with a background of social knowledge and experience. It was felt that the possession of this certificate would add to the value of the service, as a good deal of the work lies in the supervision and treatment of young children who come under the care of the medical officers. The nurses are able to keep the more chronic types of patient under frequent observation at home, and also assist at the clinics with dressings, treatment, and other routine work.

Dispensing of Medicines.—A dispensary, fully equipped under a qualified pharmacist, is provided at each clinic. The drugs, dressings, and appliances come from the central drug store of the Public Health Department, which was established some years ago to supply all the clinics and hospitals of the department. The advantages of a local dispensary of this kind attached to a clinic are obvious. Beyond clinic hours and for emergencies, a contract similar to that under national health insurance has been entered into with the chemists of the city.

Hospital and Laboratory Liaison.—All the hospitals of the local authority have been appropriated as public health institutions, and have been upgraded, enlarged, and expanded, so that a close liaison with them and with their specialist services is a matter of simple arrangement as regards both indoor and outdoor facilities. To assist admission to hospital where necessary and to allocate beds as between the general and special hospitals, a medical officer of the service is on duty at the hospital admission department of the Central Public Health Office, where there is a staff of removal clerks and a telephone exchange. A complete modern ambulance service, centrally located, works in conjunction with the central office, and a nurse accompanies each ambulance. The resources of the Public Health Laboratory, as also those at the hospitals, are available to the medical service.

Range of Duties of the Medical Staff.—The duties of the district medical officers consist of the care of the sick poor eligible for Poor Law relief, for allowances under the Unemployment Assistance Board, and the care of blind persons. They also act as public vaccinators, and fulfil the provisions as regards certification of lunatics and supervision of mental defectives required by the Lunacy and Mental Deficiency Acts pertaining to Scotland. Dependants of men on service with the Forces are eligible for attention from the medical staff. A.R.P. duties as medical officers to first-aid posts are undertaken, as also the examination of civil defence personnel on sick leave when reports are required. It is laid down that they shall perform such other duties as the medical officer of health may decide. It may be explained that the powers given to local authorities in England and Wales to provide clinics for the sick generally under the Public Health Act, 1936, do not apply to Scotland. This lack of statutory power in Scotland explains why the clinic service in Glasgow is restricted to the sick poor and other functions described.

Co-operation with Other Branches of the Public Health Service.—There exists a close association with the more special clinics of the local authority for the diagnosis and treatment of tuberculosis, with treatment of school children and pre-school children, and with ante-natal and post-natal work. Such patients are treated and supervised at home when they are unable to attend at their appropriate clinic centres. As an example of co-operation, the services of the medical and nursing staff were fully utilized during the recent mass vaccination against smallpox. They assisted in the staffing of the 25 vaccination centres and in house-to-house vaccination of contacts in addition to their routine work. Again, the staff took part in the scabies campaign, supervising the special treatment centres established for the purpose.

Medical Certification.—Before relief is given, the Welfare Department requires a medical certificate. Also, the Unemployment Assistance Board provides allowances for extra nourishment where there is a possible medical reason for so doing. These allowances are paid in cash, so that to many recipients a medical certificate in

respect of a dependant may mean an increase in the scale of payment. Certificates are also required where there is a doubt as to fitness for work, or otherwise, of a patient, the case then being referred to a district medical officer. Since these certificates are given " on soul and conscience " they demand care and accuracy in their completion. From his unique position of independence the district medical officer is entirely freed from all influences likely to prejudice his judgment.

Medical Boards.—It is obvious that, particularly in cases of application for monetary relief, divergence of medical opinion may occur between the district medical officer and the patient's own doctor. To deal with this difficulty patients are referred to Medical Boards either by the district medical officer or by the Welfare Committee. The Medical Board is constituted by one of the district medical officers and a senior medical officer on the hospital staff, and meets at one of the Corporation hospitals. In the case of patients referred to the Medical Board who are in receipt of monetary benefit from national health insurance, an endeavour is made to obtain the regional medical officer's report of his examination if the patient has been previously examined by him. Similarly, the regional medical officer may obtain the findings of the Medical Board should he be called on to deal with a patient previously examined by the board. Where the patient has no other medical attendant and the district medical officer has the slightest doubt as to his fitness for work, examination by the board is arranged. In the case of patients referred for examination by the Unemployment Assistance Board, the Medical Board is constituted by a regional medical officer and a district medical officer.

Hospital Accommodation.—Reference has already been made to the transfer and reorganization of the Corporation general hospitals. While formerly these were solely for the use of the sick poor, and though that remains their primary purpose, they are now available to the entire community, and without application to the Welfare Department. In spite of a policy of expansion, interrupted by the war, the hospitals are unequal to the demands made on their accommodation. The easing of this strain on accommodation has become a major function of the domiciliary nursing service. In this, as was to be expected, it is only partially successful, and a system of priority of admissions has had to be introduced. This duty is undertaken by the district medical officer, who assesses the urgency of the case, not only on medical grounds but also in relation to home circumstances. The war aggravated the position in three ways—i.e., restriction on building, the loss of a large number of beds in the general hospitals for civilian casualties, and the demand for man-power, which often left the patient without anyone competent to look after him. To overcome this acute problem an arrangement was made with the Department of Health for Scotland whereby emergency hospitals were, in part, made available.

As all patients are not suitable for admission to these emergency institutions—which lie outside the city—owing either to the special treatment required or to their inability to stand up to the longer journey, a process of selection by the district medical officers had to be adopted. It is interesting to note that admissions by certificate of district medical officers are forming a decreasing proportion of the total admissions. In other words, district medical officers are treating more of their patients at home, while private practitioners are tending to send more cases to hospital. Thus the hospitals are being used more and more by the general public.

Advantages of the Service

In the circumscribed area served by each clinic the location of the doctor is known. Accordingly, his services can be procured with the minimum of time and trouble. Continuity of treatment, which is greatly assisted by adequate and accurate clinical records, is one of the principal features of the scheme. Though a doctor is normally attached to one particular district, his absence may be occasioned by sick leave, annual vacation, or night-duty requirements. Under these circumstances the records prove their worth, together with the valuable store of information which the nursing sister places at the disposal of the relieving medical officer.

Though there is no free choice of doctor, judging from past experience and from information obtained from national health insurance statistics there is evidence that this is a relatively unimportant factor from the patient's point of view. Idiosyncrasies on the part of both patient and doctor will occasion difficulties from time to time, but there is little reason to doubt that with sympathy and tact these can generally be overcome, as they have been.

From the outset the advantages provided by the domiciliary nursing service were obvious, both to patients and to doctors. There is no doubt that this has satisfied a long-felt want on the part of the community, and the services of the nursing sister are now an indispensable feature in the social life of the district. These services are linked to a variety of methods of health education, health preservation, and social activities generally. If the advantages to the family rather than to the individual are considered the improvement is very great. The community benefits from such a service. A steady flow of information as to the health of the people is provided, enabling changes to be made in those institutions affecting health. The number of hours lost by the staff through sickness is reduced by reasonable conditions of service.

The advantages are by no means one-sided. Compared with the lot of the general practitioner, who has to work in almost complete isolation, together with the fact that he is cut off from the hospitals, the impossibility of his taking an active part in postgraduate activities or his inability to obtain refresher courses in medicine, his lack of proper leisure, and, in many instances, his lack of provision for retirement, the lot of the district medical officer is indeed a favourable one. In the service in which we are engaged security of tenure and reasonable conditions of work have afforded opportunity for medical study. For instance, since the inception of the service, members have taken the following qualifications: one M.D., one F.R.C.S.Ed., and four D.P.H. Several members of the staff have been called to the Forces, so that the opportunities for postgraduate study have been curtailed.

Summary

We have described a whole-time medical service conducted on behalf of a particular group of the industrial population of a large city, a group among which problems of a medico-social kind most commonly arise. The service provides clinic, domiciliary, and hospital treatment. It meets the needs of its patients, runs smoothly, and is flexible and capable of improvement and extension. Most of the doctors engaged in it are satisfied that it is a good service, because in our view it carries advantages both to the patient and to the doctor. The work is congenial and unhurried except in times of pressure, while the doctor has the help of his colleagues and of a hospital service in the background for diagnosis and treatment. To the patient the services given are reasonably prompt and adequate. The function of this scheme is to look after the sick poor who are able to attend the clinics during the day. Its application to workers who require medical attention in the evenings would be a matter of administrative adjustment. In conclusion, we have described the scheme and given our views upon it; it is not put forward in the sense that it is a final solution of present-day problems, but rather as a specific contribution for consideration and criticism.

EDUCATION IN PSYCHIATRY

The poverty of training in psychological medicine in many of our schools is notorious; in few of them has the student had a proper introduction to the subject, and those schools that have tried to eke out the scanty resources available for teaching had little encouragement from the programmes of the medical curriculum.[1] The Committee on Psychological Medicine of the Royal College of Physicians of London in the interim report published on Oct. 29 deals solely with undergraduate education in psychiatry, which was the third of its four terms of reference. Its recommendations were printed seriatim in the *Journal* of Oct. 30 (p. 553) together with those of the related Committee on Social and Preventive Medicine.

UNDERGRADUATE TRAINING

The Committee on Psychological Medicine begins its report on this subject with a truism, a digest, and a pungent commentary: " Medicine has never been considered wholly a matter of physical disease: much of the illness which doctors have to treat, and some which they might succeed in preventing, is due to psychological rather than to physical causes; but in medical education little regard has been paid to this manifest truth. The medical student has commonly had, by the time he qualifies, a handful of demonstrations and lectures on psychoses, incidental teaching on the diagnosis and summary handling of psychoneuroses, and perhaps a cursory notion of psychological theories: anything further will depend on the individual student's enterprise or curiosity and on whether he has attended one of the very few medical schools where the systematic teaching of psychiatry is thorough. Such a state of affairs would not have continued unless there had been many who believed the present training to be adequate." After amplifying this to show how weak is the contention that the training is adequate and how tellingly it has been refuted during the present war, the committee

[1] See " Psychiatry at the Cross-roads," *British Medical Journal*, Sept. 11, 1943, p. 331.

goes on to argue that, just as in medicine and surgery, the practitioner is less likely to undertake treatment which is beyond his competence or to neglect measures which are well within it if he has a solid, well-planned, limited but coherent course of clinical and systematic teaching in psychiatry. It cannot be taught solely by demonstrations and lectures, nor in one term or during only one year of the curriculum. Unless built upon a knowledge of what is normal it is as empirical and insecure as clinical medicine would be without physiology. So there must be normal psychology in the preclinical period, and the relevance of psychiatry to other branches of medicine cannot be appreciated unless it is being inculcated alongside them during the clinical period. Foremost among these other branches will be social medicine—and here the report links up with that of the other R.C.P. Committee. While recognizing that the syllabus it proposes will demand a greater share of the time of the medical student, the Committee on Psychological Medicine feels that any reorganization of the curriculum must take account of psychiatry as an integral and indispensable part of medicine. From this it follows that every teaching medical school should have a department of psychiatry for both out-patients and in-patients, with an adequate staff and accommodation, in liaison with a local mental hospital as well as other local institutions.

The Pre-clinical and Clinical Periods

With regard to the teaching of normal psychology in the preclinical years it is emphasized that the object of training at this stage, as indeed throughout the medical course, should be to produce a good general practitioner and not a specialist in psychological medicine; it is more important to introduce the student to the subject and make him aware of its mode of approach and practical possibilities than to try and cover a wide field. He should, under guidance, visit schools, factories, courts, etc., where obvious psychological problems arise. At the beginning of the first clinical year there should be an introductory course on the psychological aspects of clinical work. A systematic course on psychiatry should extend throughout the clinical period, covering the whole range of mental disorder and mental deficiency, with constant emphasis on the social aspects of mental illness in all its forms, including the neuroses. An in-patient psychiatric unit, in the committee's opinion, is an essential part of every medical school. The three months' clerking in the psychiatric department should be combined with work in other special departments, preferably neurology and perhaps paediatrics. The committee accepts the view that neurologists and psychiatrists must work closely together, and suggests that in the teaching of psychiatry to undergraduates the psychiatrist should have the co-operation of the neurologist along lines that are mutually agreeable.

The committee puts forward a tentative syllabus for lecture-demonstrations on mental deficiency in the systematic course of instruction during the clinical period, prefacing this with the remark: "About one in every hundred of the population is mentally defective, and if the dull and backward are included the total incidence of intellectual retardation in the country is probably at least ten times as great." The place which mental deficiency has taken in the medical curriculum is by no means commensurate with its importance.

Psychiatry and Social Medicine

In conclusion the committee maintains that the student needs to be taught both the social aspects of mental illness and the psychological aspects of social and industrial conditions, his attention thus being directed to the essential unity of medicine. In the psychiatric sphere much of the actual work of tuition and the organization of home visiting, etc., can be carried out by the psychiatric social workers (more of whom should be employed by teaching hospitals) and by almoners, working in close co-operation with, and under the general supervision of, the psychiatrist and his assistants. The committee recommends that the student's knowledge of normal psychology should be tested at the end of his pre-clinical period, and that in the finals there should be a separate examination in psychiatry, taken either at the end of the clinical period or earlier.

EFFECT OF WAR CONDITIONS ON MENTAL HEALTH

The first conference to be summoned by the Provisional National Council for Mental Health, which incorporates three bodies associated with mental welfare and also the work of the Mental Health Emergency Committee, was held in London on Oct. 29, and delegates from authorities under the Lunacy and Mental Treatment Acts and the Mental Deficiency Acts attended from all parts of the country. In opening the conference Mr. ERNEST BROWN, Minister of Health, spoke of the need for more out-patient centres, and, what was still more urgent, the development of child guidance clinics, which, he said, might be the means of saving many unstable and unbalanced children from developing serious mental trouble. He attributed to the improvement in employment the fact that the stress of war had not led to any increase in the incidence of the more serious mental disorders. The experience of this country up to the present had confirmed that of Barcelona in the Spanish civil war that war stresses in themselves did not increase the incidence of psychosis. One of the problems confronting us as the result of the war was that of Service men and women discharged from mental units and neurosis centres. If they were not to become a burden to themselves and the community they must be given skilled help in adjusting themselves to civil life.

Dr. THOMAS BEATON gave an interesting account of the growth and development of the comprehensive mental health services of the local authority of Portsmouth. The principal factors were the setting up of a central mental treatment department to provide the necessary psychiatric social service, the formation of a mental treatment committee of the local authority to cover the whole field of mental and nervous disease and mental deficiency, and the use of the mental hospital for in-patient treatment. The mental hospital was visited daily by a psychiatrist, and the education authority and the school medical service were closely co-operating with the running of the ancillary child guidance clinic.

Sir FARQUHAR BUZZARD, who presided over the second session, expressed the hope that when the promised White Paper appeared it would be found that the Minister had arranged for a comprehensive medical service in which most of the money provided would be invested in a long-term policy of prevention. Mental and physical health could not be separated. Notable advances had been made in the diagnosis and treatment of all forms of nervous and mental disorder during the last ten years, but greater effort was necessary on the preventive side.

Experience in an English Rural County

Dr. J. S. I. SKOTTOWE described the effect of war conditions on mental health as instanced in the population of Buckinghamshire, where a careful statistical control had been maintained. In 1938 the incidence of the more serious mental disorders as judged by the numbers entering the county mental hospital was 7.7 per 10,000 of the population; in 1941 it was only 6.4, but it was higher (7.1) among those who had come into the county since the war started and lower (6.1) among the permanent population. The incidence of the less serious disorders (treated as out-patients and in their own homes, but requiring specialist attention) was 1.7 per 10,000 in 1938 and 2.4 in 1941, but the proportion of such patients subsequently requiring to enter a mental hospital fell from 23 to 13%. Taking the gross figures for all degrees of mental illness requiring specialist advice, the incidence in 1938 in Buckinghamshire was 9.4 per 10,000, and in 1943, 13.9, but this was not entirely a real increase; much of it was accounted for by the upgrading of psychiatric services, the diminution of public prejudice against seeking advice about mental health, improved diagnosis, and extreme pressure of work of general practitioners. There remained a slight real increase, but the increase was in minor disorders, not in major ones. The most typical cases were seen at the beginning and end of occupational life, characteristically in girls in their teens and men in their seventh or even eighth decade. His conclusion was that war conditions did not increase the incidence of the more serious disorders, though they did probably increase slightly the incidence of the less serious ones.

Sir LAURENCE BROCK, chairman of the Board of Control, said that the first result of the war was a sharp rise in admission rates owing to the clearance of observation wards and also to the inability of families, on evacuation, to look after their old relatives. But before the end of 1940 admissions were below normal and had so remained. The number of cases of neurosis had increased, largely explained by the severance of people from their normal surroundings. The increase was not of serious dimensions, but it was the absence of facilities for treatment of such cases which caused concern. Should there be a recurrence of prolonged unemployment after the war many people who had escaped a breakdown while the war continued were likely to swell the list of admissions to mental hospitals.

Speakers from Aberdeen, Bristol, and other areas gave similar testimony. Dr. DORIS ODLUM said that at her clinic a type of anxiety had been manifested, a reaction which had both a physical and a mental pattern. It was a prolonged series of stresses, and not an acute sudden stress, which caused a breakdown. Another discussion was on the residential school and its place in the education of defective and subnormal children. Mr. E. R. DAVIES, of the Berkshire County Council, described the work of a child guidance clinic which had been set up by his authority under the Mental Treatment Act. This clinic was the first of its kind in the country to employ two whole-time psychiatrists and a full staff of educational psychologists and psychiatric social workers. The scheme, which was intended to be a permanent, not a wartime, measure, was operating satisfactorily and could be recommended as a method of establishing child guidance clinics for moderately sized authorities.

Correspondence

Are Hospital Diets Adequate?

SIR,—In a recent publication of the King Edward's Hospital Fund for London, Memorandum on Hospital Diet, to which reference has been made in a leading article in this *Journal* (Sept. 18, p. 365), it is suggested that a daily diet yielding about 1,690 calories is adequate for a hospital patient weighing 70 kg. A daily requirement of 1,690 calories represents the "basal metabolism" of a subject of this weight. "Basal metabolism" is strictly defined as the energy output of a subject who is at complete rest under comfortable conditions and has had no food for the preceding twelve hours. If, therefore, we accept as our criterion the daily requirement of a 70-kg. man, it is clear that there will be no surplus in the proposed diet to meet the increase of metabolism above the basal level caused either by the specific dynamic action of the food taken (the resting metabolism is always increased during the absorption of food into the body) or by muscular movements, which will be made to an increasing degree as convalescence is established. Nor will there be any surplus to make good the wasting of the tissues which may have occurred in the earlier stages of the illness when the patient was unable to assimilate an adequate amount of food.

It seems to us, therefore, that if we adopt the criterion upon which the memorandum is based the proposed diet cannot be regarded as really sufficient, and we suggest that it might be wise to give the matter further consideration.—We are, etc.,

C. G. DOUGLAS.
R. MCCARRISON.
R. A. PETERS.

Oxford.

Mind and Stomach

SIR,—There would seem much to be said for a possible "anxiety" factor in the manifestation of peptic ulcer, although there are many cases in which this is not apparent and very difficult to elicit by ordinary examination. There seems also very little doubt—making all allowances for earlier and more accurate diagnosis by present-day methods—that the incidence of peptic ulceration has increased in recent years. But what is the explanation of the difference between the two sexes? The figures quoted by Sir Henry Tidy show that the ratio of incidence between men and women is in the region of 5 to 1. That there is such a striking difference must be the common experience of all who see large numbers of such cases. But the national and international environment during the last twenty-five years has been the same for both sexes, and it would be difficult to argue that women are less exposed to the ordinary stresses and strains of everyday life than men. If there is a strong psychical factor at work in the causation of peptic ulceration, why are women so relatively immune? If we could discover the answer to this question we might be able to make some substantial advance in the treatment of these cases, after-histories of which show how relatively unsatisfactory are the present methods, both medical and surgical.—I am, etc.,

H. H. BASHFORD.

London, E.C.1.

Sterility and Impaired Fertility

SIR,—The letter under this heading in your issue of Oct. 16 (p. 493) directs attention to the frequency of (physiological) sterility and to the need for an extension of facilities for its further investigation and treatment. With this part of the letter of your sixteen correspondents we are in agreement.

We do not, however, agree that "all available data strongly suggest that the barren and the very small family reflect lower fecundity rather than excessive unwillingness to reproduce." We believe that a definite pronouncement on these questions cannot be made until much more evidence becomes available. For example, we require to know the fertility trends in the major social groupings and the variation in the size of families according to social and economic levels, by date of and age at marriage. These are data which can only be ascertained by census inquiries. Meanwhile, there is much evidence that a major influence in the creation of the modern small family is voluntary restriction of fertility, and that this has had its origin in changed social and economic standards. Thus, so long as there is no adequate evidence of a difference in the *innate* fertility of different groupings, it would seem to be safe to assume, for example, that the small families of the professional classes are due to voluntary restriction.

From the demographic standpoint the central question at the present time is whether infecundity has *increased* in such a way as to play a part in the decline in fertility. At present there is no evidence to show that such an increase has played any part at all. There is no reason for thinking that fertility is any more affected by this cause now than it was 70 years ago, when the birth rate was over 30 per 1,000. In the effort to raise fertility, undoubtedly everything should be done to help parents who are involuntarily sterile; but the main object of policy must remain that of changing the social and economic conditions and the attitudes of normally fecund parents so as to favour the large rather than the small family.—We are, etc.,

A. M. CARR-SAUNDERS.
D. V. GLASS.
EARDLEY HOLLAND.
HORDER.
R. M. TITMUSS.
JAMES YOUNG.
C. P. BLACKER.

Symptoms of Vitamin B Deficiency

SIR,—The studies in vitamin B deficiency by Drs. Clarke and Prescott (Oct. 23, p. 503) call for comment on several points.

1. The italicized list of symptoms common to psychoneurosis and vitamin B deficiency specifically omits diarrhoea. Even granting that occasional cases of pellagra are recorded as having constipation, diarrhoea is such a cardinal feature of the disease and so important in diagnosis that this deliberate omission seems quite inexplicable. Moreover, there is no account of the state of the bowels in the case records quoted.

2. With the general conception of a marginal diet, made quite inadequate by additional factors, as the cause of the symptoms in these cases few will disagree. Nevertheless I think the authors are too easily satisfied by this simple hypothesis; actual clinical experience suggests that some other factor must be at work to explain why some persons readily develop pellagra, and become chronic or relapsing, and others do not. I feel that Case IV, of eleven years' standing, illustrates this, and I would not be prepared to accept typhoid fever at some unstated time in the past as a material factor in malabsorption.

3. The occurrence of "symptoms usually regarded as psychoneurotic" raises, I agree, an important point in differential diagnosis. Nevertheless psychopathologically the distinction is not valid: it is only the significance of the symptoms that is distinctive. In kind they are indeed psychoneurotic, in the sense that they are reactive to an awareness, conscious or unconscious, of incapacity. The latter results in these cases from early organic cerebral change (as is witnessed by histopathological evidence and by the clinical features of chronic demented cases). It is surely a commonplace of psychiatry that the earliest manifestation of organic cerebral damage may be a purely "functional" syndrome long before detectable signs of the "organic syndrome" are evident.—I am, etc.,

G. H. H. BENHAM.

Manchester.

Wartime Diet for Peptic Ulcer Patients

SIR,—I should regard Sir Arthur Hurst (Oct. 23, p. 523) a formidable opponent with whom to cross swords on the subject of peptic ulcer were it not for three facts: (1) I have had a peptic ulcer in wartime and he, so far as I am aware, has not. (2) I am in the thick of the fray on the industrial front, and he, I note, writes from the quiet of Oxford, from which retreat I do not think he can possibly be aware of the difficulties under which industrial peptic ulcer patients labour, especially when their wives are conscripted into part-time employment, shopping is difficult, and domestic help unobtainable. (3) Such a sweeping generalization as "there is no food intrinsically bad for ulcer" I would hardly expect from one of Sir Arthur's eminence. Is this a new physiological principle? Are we all,

then, of the same digestive ability? Is the proverb, "One man's food is another man's poison," utterly inaccurate? Is it reasonable to pay no attention to a person's likes and dislikes, to what he can and cannot digest? I cannot in my present condition digest, among other things, the chocolate Sir Arthur mentions; it makes me feel sick. Must I nevertheless continue to try and absorb it?

I find that meat produces in me far more HCl than cheese, hence my suggestion of a temporary exchange. I find that milk alone in the few ounces at a time Sir Arthur advocates does not close my pylorus; I must have something solid to go with it, hence the suggestion for biscuits (now positively unobtainable in my area). There must be thousands of similar cases in the country all struggling along under a grave handicap, simply because no one has yet awakened to the fact that something ought to be done about it.

I agree that anxiety plays some part in the causation of ulcer and its recurrence, but intense and sustained mental effort and working under pressure are equally causative. There is no doubt that Davies and Macbeth were right in 1937 when they drew attention to the psychogenic factor in causation. I also agree that phenobarb tone is helpful, in fact essential, and I have obtained more benefit from the following prescription than from alkalis and adsorbents: sod. phenobarb. gr. viij, ext. hyoscyam. liq. 3j, syrupus 3j, aq. chlorof. ad 3viij. Sig.: 3ij after breakfast and lunch and 3ss h.s. I fully agree that smoking is deleterious. It should be totally prohibited, not strictly rationed, and alcohol also should be forbidden.

I thank the doctors who took the trouble to reply to my appeal, and will write to them all personally as soon as I have time. Those who did write were all in favour of my suggestions, and those who did not were, I expect, much too busy even to open their *Journals*.—I am, etc.,

Harrow, Middlesex. J. B. WRATHALL ROWE.

Psychiatry at the Cross-roads

SIR,—Doctors and patients too are indebted to Dr. W. Sargant for drawing attention (Oct. 9, p. 462) to the urgent need for better organization if there is to be any real progress in psychiatry. In supporting Dr. Sargant's forceful argument I agree with him that this is not an attack on individual superintendents. It is a criticism of an obsolete system. It is a plea for clinical freedom—a thing practically non-existent in county mental hospitals.

The reason for this state of affairs is obvious. Promotion in the mental hospital service is almost exclusively in the hands of administrators, whose tendency is to appoint as their assistant medical officers not colleagues but "yes men," who will render lip-service and who will avoid trouble at all cost—at the cost of their patients' welfare. The A.M.O. who puts clinical progress before the personal interests of his chief is unpopular; he is passed over in the struggle for promotion, and he seldom has access to the hospital committee, even though he may have ideas and skill which would benefit the hospital. A man with such ideas is snubbed, the medical superintendent regards him as a rival, and the hospital suffers.

The best type of medical man is not attracted to this sort of institutional work for one definite reason: this reason is the absence of the professional freedom enjoyed by senior staff in voluntary hospitals as contrasted with their colleagues in mental hospitals, where the superintendent is technically in charge of all the patients and is the immediate "boss" of the whole of the medical staff. If the mental hospital service is to develop it is essential that medical men should be attracted to it as doctors rather than as administrators, who now get all the highest-paid jobs.

The medical superintendent who sees a personal insult in the efforts of an A.M.O. to improve the hospital will not build a progressive team. His assistants must either subordinate their highest ethical ambitions or else retire from a position in which their noblest ideals are rendered sterile. This means leaving the service to undertake real medical work elsewhere. And such a step requires considerable courage. The majority of medical officers, being entirely dependent on the administrator's good will, take the easier course and become "medical clerks" in the hope that one day they will achieve a comfortable and secure position at a superintendent's desk.

How can this terrible handicap to psychiatry be averted? To begin with, all staff appointments should be made by a committee whose members will not be afraid to override, if necessary, the personal likes and dislikes of the administrator. Such a committee would evaluate a candidate's worth not only as a technician but first of all as a man. Existing arrangements are often nothing but "eye-wash" to enable superintendents to tell patients, their relatives, the Board of Control, and visiting committees too, that modern scientific facilities are available. It is to be hoped that future mental hospital committees will be guided by something more fundamental than a diploma or two—by the individual doctor's skill in treatment, teaching, and research. Then, and only then, will the mental hospital take its proper place in the life of the community.—I am, etc.,

Wimborne. J. STEPHEN HORSLEY.

Iodine Deficiency

SIR,—You are probably aware of the fact that some of the best-known of our medical authorities are now impressed by the fact that iodine deficiency in our ordinary food is evident, and that in certain districts steps are being taken at this moment to improve the situation by the administration of iodized salt. I understand that there will be an early announcement on this subject in the medical press.

My object in writing this letter is to point out that I have been engaged during the past 14 years in urging that steps should be taken in this matter, but my various articles have been ignored, at least in this country. In 1933 I published a pamphlet on "The Problem of the Prevention and Treatment of Disease," concluding it with these remarks: "The leading nation from the point of view of health will be that which realizes the value of salt iodization and puts it into general practice." This pamphlet was widely distributed in this country and abroad, and early in 1934 I received a request from a German agency in London to let them have as many copies of this pamphlet as could be spared. This request was duly complied with, and I was informed that they had been forwarded to Berlin, Leipzig, and Munich.

In Jan., 1939, an article written by Dr. F. Fischler, director of the German Research Institute of Food Chemistry, Munich, appeared in the *Deutsche Medizinische Wochenschrift*, in which he gave an account of an extensive series of experiments carried out on people in certain parts of the Rhineland, and he strongly urged the wholesale introduction of iodine-containing salt in the diet of the whole community of the Third Reich.

These facts I communicated to the appropriate authorities in Whitehall in the early days of the war, but the Scientific Advisory Committee, to whom the letter was forwarded, did not show any interest. In Oct.–Nov., 1941, I published an extensive article on the "Prevention of Disease," and in July, 1943, one on "Diet and Health," and both dealt with the same problem. Of course the German scientist was silent on the origin of his idea, and whether my own countrymen will adopt the same standard of ethics remains to be seen.—I am, etc.,

Penarth. W. MITCHELL STEVENS.

Wartime Day Nurseries

SIR,—Miss B. R. Abelson, in her interesting letter on nursery schools (Oct. 23, p. 527), seems to be under some misapprehension as to the subject of the meeting held by the London Association of the Medical Women's Federation in June. The discussion was concerned not with nursery schools but with the wartime nurseries for children from 4 weeks to 5 years of age who need to be cared for during the long hours that their mothers are at work. The general opinion of the meeting was that not only were these nurseries detrimental to the health and happiness of the children, owing to the long hours, often unsuitable premises, insufficient and inadequately trained staff, and the grave risk of infection, but they did not, in fact, achieve the purpose for which they were designed—that of releasing woman-power for war work. The proportion of staff (including domestic staff) to children in nurseries catering for from forty to fifty children is about one to four, and owing to the incidence of infectious diseases the number of children attending is for long periods much under the maximum possible. In addition,

there is the personnel required for the building, equipment, administration, and inspection of the nurseries. It seems probable that these nurseries have used more man- and woman-power than they have set free for the war effort.

A well-planned nursery school, designed for the use of 3- to 5-year-old children during school hours, which is adequately staffed and visited daily by an experienced health visitor and at frequent intervals by a doctor for routine examination of the children, can form a very useful part of the social services of the country, but this does not meet the needs of whole-time women workers. Even so, it must not be forgotten that there is a great risk of infection in groups of very young children, and that the fatality rate among children who develop zymotic disease at these ages is much greater than that of children of ordinary school age. A wartime nursery to which young babies are brought in the early morning and from which they are fetched by tired mothers in the late evening is a very different proposition, and I would join with Miss Abelson in my admiration of the way in which these mothers are undertaking an almost superhuman task.—I am, etc.,

London, S.W.1. MARJORIE BACK.

X-ray Diagnosis of Phthisis in Symptomless Adolescents or Young Adults

SIR,—In the present urge for mass radiography of the chest the outstanding problem will evidently be how to deal with the symptomless adolescent or young adult cases which, as a result of *x*-ray examination, have been labelled as tuberculous. It is important to emphasize that these cases are symptomless. In Dr. Macpherson's paper (July 24, p. 48) we read that "a healthy youth, working and playing hard, with no symptoms, is suddenly singled out from his companions and told that he has evidence of pulmonary tuberculosis"; and, again, that "it is not uncommon that, apart from the radiographs, every finding is normal." Such a youth is naturally averse to undergoing a long period of sanatorium treatment, and Dr. Macpherson's answer to this is to go straight for an artificial pneumothorax. "These symptomless patients," she says, "should be ideal subjects for such treatment," or indeed for any kind of treatment (seeing that they are perfectly healthy), provided they can be persuaded to undergo the particular treatment offered.

The crucial question which has to be answered is: "Can *x*-ray examination alone prove the existence of a tuberculous focus in its earliest phase in the absence of all clinical signs and symptoms?" We have been told by expert radiologists recently that though a shadow may be definitely diagnosed as tuberculous in origin it is often impossible to say whether it indicates active or merely obsolescent tubercle, and that a shadow seen to-day may be gone a few weeks later. I maintain that until this question can be definitely settled with general agreement among experts it is not fair to the patient to resort forthwith to an artificial pneumothorax. In my own mind I feel perfectly sure that there are shadows which one observer would straightway label as tuberculous, and active at that, and which another observer would be doubtful about or would even negative.

Dr. Macpherson declares that "it is not necessary to attempt a complete collapse of the lung; a shallow pneumothorax sufficient to control and immobilize the diseased lung partially or completely is what is required." I should be interested to know how Dr. Macpherson can guarantee immobilization of a diseased lung by a shallow pneumothorax. I may, of course, be hopelessly out of date, but in our time it was always taught that complete collapse of the lung was the ideal to aim at, except where, in certain fortunate cases, selective collapse—meaning complete collapse of the diseased portion only—was obtainable. Anyone who has looked at the fluorescent screen in a case of artificial pneumothorax must be aware of the quite extensive movement of the incompletely collapsed lung, even though the pneumothorax could by no means be called a "shallow" one. Dr. Macpherson does not hesitate to advise even a bilateral shallow pneumothorax where both lungs show disease. I should, further, like to know what are the scientific grounds for saying that "a shallow pneumothorax for a slight lesion of the lung is unlikely to give rise to complications." Is there any good evidence that complications are less common in a partial collapse than in complete collapse of the lung?

Dr. Macpherson writes as a worker in the Brompton Hospital Research Department, and she avers that the treatment which she advocates "is the one which has been adopted." Does this mean that the honorary physicians on the staff of the Brompton Hospital are agreed in adopting this treatment in the symptomless adolescent or young adult case diagnosed on *x*-ray findings alone? One would hardly suppose so, for Dr. Macpherson herself admits, indeed emphasizes, that "as yet it is impossible to assess its value."

If, as stated by her with regard to adolescent pulmonary tuberculosis (Report VII), "the period of time between the first appearance of the lesion in the *x*-ray film and the first symptom varied between three and five years," why should there be such haste to induce a pneumothorax? Surely the more sensible procedure would be to keep such cases under continued *x*-ray and clinical observation, so long as no development of the lesion is observed under *x* rays and the patient continues to be free of all symptoms and clinical signs. If either of these conditions is unfulfilled then collapse of the lung might be undertaken: whether partial or complete the experts must decide. In this way many patients would be saved from an unnecessary pneumothorax. We want to know, also, what proportion of these symptomless cases actually develop active disease, and this, apparently, the Brompton Hospital Research Department is unable to tell us, although the Department has now been at work for 14 years.—I am, etc.,

Southborough, Tunbridge Wells. E. WEATHERHEAD.

*** When the foregoing letter was standing in type Dr. Weatherhead wrote as follows:

Owing to delay in receiving my copies of the *Journal* my letter was sent in before I had seen the issues published later than Oct. 2, which contain some interesting letters on the question at issue.

Treatment of Lupus Vulgaris

SIR,—I wish to correct a statement I made in my letter (Oct. 9, p. 436) in which I stated that the Royal Infirmary, Edinburgh, was the only voluntary hospital to possess three Finsen-Lomholt lamps. My letter was written before Dr. Arthur Burrows's letter was published, and on communicating with him he informed me that the London Hospital has more. When I was in London early in 1938 I knew that there was a Finsen-Lomholt lamp in each of two hospitals there, and the dermatological friends of whom I made inquiries were not aware of the proposed change-over of apparatus at the London Hospital. I had assumed, wrongly as it turns out, that no considerable number of these lamps had been installed in one hospital in the eighteen months prior to the war.

It is a great pleasure to those of us long connected with the treatment of lupus vulgaris to know that the London Hospital is continuing, with the latest and most efficient apparatus, the fight against lupus for which it has so long and so justly been renowned.—I am, etc.,

Edinburgh ROBERT AITKEN.

Psychology and the Common Cold

SIR,—Dr. L. Leslie's remarks (Oct. 16, p. 494) on this subject have point. Many psychiatrists would disagree with Dr. E. W. Braithwaite's conclusions as to the invariable relationship between "a particular emotional state," which he leaves unspecified, and the origin of the common cold. It must be remembered among other things that psychoneurotics, from whom Dr. Braithwaite's conclusions are drawn, are very suggestible subjects. Many of their "colds" are not naso-pharyngeal infections at all, but are episodes of "nasal neurosis" induced, as Ross pointed out, by auto- and hetero-suggestion.

True colds are often enough accompanied and preceded by emotional states, specific for the sufferer and depending on his temperament and personality structure. Like all other organic illnesses they have, in other words, a psychic aspect of greater or less importance. Such a psychic aspect is certainly likely to be more noticeable in psychoneurotics because of their

general emotional instability, but this does not mean that "the specific factor is psychological; the microbic one secondary."—I am, etc.,

E. HOWARD KITCHING,
Psychiatrist, Manchester Royal Infirmary.

SIR,—I was amazed to read the letter from Dr. E. Wrigley Braithwaite (Oct. 2, p. 433). His letter contains five contentions, all of them high-coloured extravagances and overstatements. He claims twenty-five years' practice of psycho-analysis, but does not mention the number of colds he has observed. His first contention is that in the psychoneurotics under his treatment "a cold invariably occurred in a particular emotional state." Surely the experience of the profession is that the spread of the complaint is due to droplet infection by a virus, and is no more concerned with emotional states than any other infection, be it by virus or bacterium.

The fourth contention is that "cold, wet, hunger, exhaustion, and a source of infection do not result in the development of a cold in the absence of the appropriate emotional state." Now every practitioner knows that emotional states may be predisposing, but to particularize such a state as the *sine qua non* is ludicrous in the extreme. It really seems that such teaching as the above is a wilful retrogression to the aetiology of the Middle Ages.—I am, etc.,

Hove. W. BRYCE ORME.

SIR,—Dr. E. W. Braithwaite's statement (Oct. 30, p. 559) that "the specific factor is psychological" seems to imply that there is only one *essential* factor in the determination of a "cold"; but, as Drs. Anderson and Parry point out, microbic and physiological (and, I should add, some nasal pathology) are equally *essential*. Does he mean anything further than that "in his opinion as a psychologist, the most important [to him] of the many factors determining a cold is the psychological"? He says he would use power, if he had it, for a concentrated attack upon "the national neurosis" (cold proneness). Would he tell us how this could best be carried out? and if the terms of reference and the proceedings could be expressed in medical terms which are clearly understood by the physiologist, pathologist, and bacteriologist?—I am, etc.,

Birmingham. F. A. PICKWORTH.

SIR,—I believe with Dr. E. Wrigley Braithwaite that infective micro-organisms of any kind, including those of "the common cold," can obtain a mastery of the bodily defences only when the individual is depressed or over-fatigued. A happy person has a remarkable immunity. I also feel that Dr. Parry is on the right lines when he associates nasal catarrh and sex; only my observation goes to show that it is not so much "abuse" of sex but lack of proper use of the sex organs which promotes congestion of the nasal sinuses.

The same processes which lead to anxiety neurosis—namely, stimulation followed by frustration—can, I believe, initiate a chronic nasal catarrh alike in courting couples, women who cheat the uterus by contraceptives or are deprived of orgasm, and habitual masturbators.—I am, etc.,

Birmingham. R. MACDONALD LADELL.

Atmospheric Pollution with Cement Dust

SIR,—I have read with great interest your annotation (Oct. 16, p. 489) on the smoke nuisance prevailing in all the big cities of Britain. I regret, however, that you made no mention therein of the equally great, if not greater, nuisance caused by cement dust, which pollutes the atmosphere of places where cement is manufactured. I do not happen to know what it is like in other districts, but my experience of this district and others in the Thames Valley is such as to compel me to place on record my sense of the abominable nuisance resulting from such air pollution, to say nothing of the danger it constitutes to the health of those who unhappily have to live in those districts.

The extent to which such pollution occurs is simply unbelievable, through the constant and never-ending clouds of cement dust pouring night and day out of the chimneys about here. Flint dust is used in the manufacture of cement, which constitutes an additional danger. One must live in this district to be able to realize how very justifiable is my complaint, which I venture to suggest calls for urgent redress, just as much as the smoke nuisance does elsewhere. I trust you may think it imperative to draw the attention of the authorities to it in one of your forthcoming leaders.—I am, etc.,

Greenhithe. D. W. STANDLEY.

Vincent's Infection during Arsenical Treatment

SIR,—The recent article by Squad. Ldr. E. C. O. Jewesbury on the misuse of intravenous N.A.B. for Vincent's infection (Sept. 18, p. 360) and the subsequent correspondence have prompted me to report the following case:

The patient, a female aged 19, suffered from syphilis and gonorrhoea. She attended voluntarily on June 29, 1943, as a twice-named contact under Regulation 33B. There was a primary chancre on the inner surface of the left labium majus near the fourchette and strongly positive Wassermann and Kahn reactions. Treatment was instituted forthwith, and by Sept. 16 she had completed a first course of intravenous stabilarsan (4.65 g.) with concurrent bismostab (2 g.). The patient was advised early in treatment to receive attention for her many carious teeth. This advice was ignored, and on completion of the first course there was a faint bismuth blue-line in the gums.

On Sept. 23, one week after the completed course, the patient reported to the clinic complaining of a sore mouth. There was an infected ulcer around the left third molar in the lower jaw, but the throat was clear. Vincent's organisms were present in a direct smear. The patient was treated with glycothymoline mouth-washes and daily local applications of gentian violet. The infection and ulceration spread within the next few days to the inner surface of the tongue on both sides and around the right lower molars and the inner surfaces of both cheeks; the throat remained clear. On Sept. 28 another intravenous injection of stabilarsan was given (0.3 g.). In the next two or three days there was no local improvement and a deterioration in the general condition.

On Oct. 2 the local treatment suggested by Squad. Ldr. Jewesbury was instituted, with the result that within two days the ulcers were clean and healing, pain had disappeared, and there was great improvement in the general condition. By Oct. 8 all the lesions had healed.

Several cases of Vincent's infection of both throat and gums have been referred to this clinic as suspected cases of secondary syphilis. These have responded promptly to intravenous stabilarsan; two injections have usually sufficed. I agree with Major Davis (Oct. 9, p. 464) that a possible explanation of failure in those cases which have received previous arsenical therapy may lie in the organisms having become drug-resistant.

It would seem that where a case of Vincent's infection is known to have had previous intravenous arsenic, faith should be put in local treatment. Vincent's infection in patients not previously treated with arsenic should at least be tried with intravenous arsenic.—I am, etc.,

V.D. Clinic, Rotherham. R. C. WOFINDEN.

Treatment of Chronic Rheumatism

SIR,—In your issue of Oct. 23 (p. 510) G. Laughton Scott writes: "The literature of intra-articular chemotherapy, for example, hardly exists except for Forestier's scanty notes." In the light of this rather sweeping statement it might be interesting to cite the following lines of the second edition of a monograph (L. Schmidt, *Clinical Aspects and Treatment of Articular Rheumatism*, Vienna, 1930):

"The surgical treatment of chronic arthritis, particularly chronic infective arthritis, does not in general receive as much consideration as it should. E. Payr has done well to draw attention in numerous papers to the fact that chronic infective arthritis is not an unprofitable borderland between medicine and surgery but rather a broad field in which the clinical and therapeutic co-operation of an experienced surgeon and physician may produce striking results. This also applies to the cases in which medical treatment alone can do nothing more. His own special methods of 'continuous anaesthesia' and 'continuous antisepsis' of the joints (through intra-articular injections) have certainly done much to develop these possibilities. In order to make the possibilities of surgical treatment better known to general practitioners and physicians, I quote fully from Payr's scheme of treatment."

Unfortunately it is not possible to reproduce within the framework of a letter the whole quotation, extending to several pages of the monograph, but those who are interested would do well to read Payr's genuine work on the subject ("Chronische Infektarthritis und ihre Chirurgische Behandlung

durch Injektionen," *Z. klin. Med.*, 1928, **108,** No. 1-3). In fact, in the course of years many hundreds of cases of chronic rheumatic joints have been successfully treated at my clinic by injecting various substances into the joints according to the requirements of the cases.

I do not know whether anyone, after having studied the above-mentioned works, will be inclined to accept Scott's "claim of innovation," but I hope that everybody will agree that he has made a very valuable further contribution to a since long-practised medico-surgical method, which, he suggests, should be called forthwith—rightly or wrongly—"local chemotherapy in chronic rheumatism."—I am, etc.,

Newark. L. SCHMIDT, M.D.Prague.

"Opponents of the Medical Profession"

SIR,—My colleagues and I welcome the review of Bulletin No. 1 of the Medical Policy Association (London) in your issue of Oct. 30, and look forward to your comments and criticisms of the contents of subsequent numbers. So far we have issued nine bulletins. We note that no statement of fact in Bulletin 1 has been challenged, and we consider your article a fair analysis of its contents, though doubtless not altogether fair in intention.

The charge of anti-Semitism is now a well-known device in the technique of denigration. In other words, the legitimate reactions of the Jews and their sympathizers are being deliberately exploited as a technical device to achieve certain ends—namely, to discredit one's opponents. It is well that the Jewish community should note this development. We deny that anti-Semitism is implicit in our policy or in the technique with which we implement that policy, and such an assumption is an illegitimate inference from the contents of Bulletin 1. A historian of, say, Christianity would, in discussing origins, find it necessary to record Jewish plots and persecutions. Is he therefore to be labelled an anti-Semite? Bulletin 1 dealt with origins.

May we make one or two further comments? First, it is surely naive to believe that what appears nowadays in the evening paper to which you referred is necessarily true. The definition of Jewish Fascism which you quote in your article is not ours. Secondly, in quoting the book *Protocols of Zion* we were careful to indicate that there are doubts as to its authenticity. Thirdly, with regard to the question of whether there exists an active organization which desires war rather than peace and which, operating behind the obvious economic and political causes of war, directs high policy, our attitude is that there is a case for investigation. Certain evidence exists, and if proved valid the persons involved must be tried, and if guilty punished, else we shall never have an end of wars. It is pertinent to ask oneself, for example, whether there is not some connexion between the planners of to-day and the pacifists and disarmament propagandists of yesterday. Finally, may we again express our pleasure at your decision to review our literature?—I am, etc.,

London, W.1. A. RUGG-GUNN.

A "Charter of Health"

SIR,—Dr. Norman Sprott's letter (Oct. 23, p. 525) is of great interest to the medical profession of every Allied nation. Therefore, a charter of health should not, I think, be confined to one country alone, but extended for whole continents and indeed for the whole world. The problem of the decline in population has, for instance, the greatest significance for Western and Central Europe; but it is, to-day at least, not a problem for Russia and Asia. A charter of health with a universal meaning can, therefore, only be drafted on international lines. For this very purpose the Anglo-Czechoslovak Founders Committee (Health Charter), 18, Grosvenor Place, S.W.1, has instituted in the course of the year an "open competition" for the drafting of an Inter-Allied Charter of Health which implicates the suggested "Atlantic Charter of Health."

In the light of the recommendations made by Dr. Sprott and upon an international basis I wish to draw attention to the competition now running. Particulars can be obtained at the above address.—I am, etc.,

London, W.C.1. JUL. LÖWY.

Obituary

F. JOHN POYNTON, M.D., F.R.C.P.

We regret to announce the death of Dr. F. J. Poynton, consulting physician to University College Hospital and to the Hospital for Sick Children, Great Ormond Street, who had been living at Combe Park, Bath, since his retirement from active practice in London. He died on Oct. 29.

Frederic John Poynton, son of the Rev. F. J. Poynton, rector of Kelston, Bath, was born in 1869, and, like his elder brother A. B. Poynton, D.Lit., formerly Master of University College, Oxford, was educated at Marlborough College. He began his medical studies at University College, Bristol, and continued them in London at St. Mary's Hospital, where he won a scholarship in anatomy and physiology. He qualified M.R.C.S. and L.R.C.P. in 1893, and in the following year gained first-class honours at the Final M.B.Lond. examination; he took the M.D. in 1896, the M.R.C.P. in 1897, and was elected F.R.C.P. in 1903. Poynton became physician to out-patients at the Hospital for Sick Children in 1900, physician in 1919, and consulting physician in 1934. His connexion with University College Hospital began in 1903 as assistant physician; he was promoted to the full staff in 1910, and on retirement in 1934 was made consulting physician. He wrote in 1907 a small book on *Heart Disease and Thoracic Aneurysm*, and had for some years before then worked with Alexander Paine in an investigation of the cause and nature of juvenile rheumatism, which they recorded in 1913 in *Researches on Rheumatism*. It was in 1900 that Poynton and Paine obtained from the blood and inflammatory lesions in cases of rheumatic fever a diplostreptococcus and began to formulate the streptococcal hypothesis of the causation of acute rheumatism. This view, upheld tenaciously against all comers, was by no means the only contribution Poynton made to the study of rheumatism in childhood, and his work in that field and in paediatrics generally was recognized in 1930 by the award of the Dawson Williams Prize, founded in memory of the late editor of the *British Medical Journal*. Jointly with Dr. Bernard Schlesinger he published a book on *Recent Advances in the Study of Rheumatism*, which reached a second edition in 1937. Many years earlier he had edited the fifth and sixth editions of *Artificial Feeding of Infants* by W. B. Cheadle, whose pupil he had been both at St. Mary's and at Great Ormond Street, and before then he had published with G. F. Still a paper showing that the most severe effects of the rheumatic poisons in a subcutaneous nodule were tiny areas of necrosis, thus confirming Scandinavian investigators. His long service in the cause of sick children was recognized by election as president of the British Paediatric Association.

Poynton joined the B.M.A. in 1898, was secretary of the Section of Medicine in 1907, vice-president of the Section of Diseases of Children at the Centenary Meeting in 1932, and president of the Section of Paediatrics in 1934; he was also an active member of the special subcommittee set up by the Council in 1923 to inquire into the question of cardiac diseases in children. At the Royal College of Physicians he gave the Bradshaw Lecture in 1924 on the prevention of acute rheumatism, and was Senior Censor in 1930; he was also Lettsomian Lecturer in 1927 before the Medical Society of London, Long Fox Lecturer at Bristol in 1934, and Harben Lecturer in 1936. The Cardiac Society made him an honorary member.

Poynton was devoted to his native county. He had been a fine cricketer in his younger years and played for Somerset from 1891 to 1896; he also played hockey for Middlesex. Field sports were not his only recreation; he was a music lover and a Fellow of the Philharmonic Society, and something of an archaeologist.

R. H. writes:

By the death of Dr. F. J. Poynton the diminishing band of elder paediatrists has suffered another loss, for, although he was also a general physician and for many years on the staff of University College Hospital, it was as a children's specialist that he was best known. His chief original work, as everyone knows, was on the bacteriology of acute

rheumatism, in which he was really a pioneer, and, although his conclusions have never been fully confirmed, rheumatism in its different manifestations remained his dominant interest throughout life, and the destruction of his original specimens in the recent damage to the Museum of the Royal College of Surgeons was a great grief to him. He was a devoted servant of the Hospital for Sick Children, Great Ormond Street, where he served his full time on the staff, and its welfare was always very dear to him. An assiduous teacher, first in the out-patient department and afterwards in the wards, many of his pupils thought him rather cynical and sarcastic, but all who got to know him well realized that these were only superficial mannerisms which concealed a real kindness and warmth of heart and a generous love of children. He was an original member of the British Paediatric Association and its president in 1932, and he thoroughly enjoyed its annual meetings, at which he was able to show the more genial side of his nature and to make friends with his junior colleagues.

Poynton had private sorrows and disappointments which would have embittered most men, but he bore them and the enforced tedium of his later years with a manly dignity and philosophy. He has gone home after a hard-working and high-principled life; but he was not a happy man and quite out of sympathy with the trend of public and professional life to-day, and his staunch individualism would have agreed ill with the shape of things to come. For his own sake, therefore, one is glad that he is at peace.

C. J. MACALISTER, M.D., F.R.C.P.

Although it is sixteen years since Dr. C. J. Macalister retired from active practice and went to live in Gloucestershire far from his native Merseyside the news of his death, which took place on Oct. 25, will evoke many vivid memories of him, as well as widespread regret, in Liverpool and in large circles of the medical profession elsewhere. He practised in Liverpool for over forty years, and, apart from his skill as a physician, he made his mark on the city, especially for his pioneer work in child welfare and in many social causes.

Charles John Macalister was born at Bootle the third son of William Boyd Macalister, a man closely connected with the shipping industries of the Mersey. He was educated at Liverpool High School and the University of Edinburgh, graduating in medicine in 1884. He returned to Edinburgh eleven years later to receive his M.D., with commendation, and in 1909 he was elected a Fellow of the Royal College of Physicians of London. After qualification he returned to Liverpool as junior resident surgeon at the Children's Infirmary, and from 1885 to 1887 he held a similar resident post at Manchester Children's Hospital. In 1887 he became pathologist to the Royal Southern Hospital, Liverpool, the hospital in which, as a member of its medical staff for 25 years, some of his best work was done. Settling down in practice in Liverpool he devoted himself particularly to work among children. One of his first enterprises was an out-patient clinic in connexion with the Liverpool Medical Mission. This introduced him into the homes of the poor and gave him an understanding and compassion, especially for the children of the slums, which never left him. In 1892 he was appointed physician at the Stanley Hospital, Liverpool, a post he held for eight years, and for fifteen years he was physician to the Liverpool Home for Incurables. It was while holding this latter position that it was brought home to him strongly that many of the children afflicted with crippling diseases, such as surgical tuberculosis, only needed regular treatment and open-air life to be restored. Sir Robert Jones, who for many later years was surgeon to the Royal Southern while Macalister was physician, was also greatly interested in these children, and the help of some generous friends was enlisted. A ward of twenty beds was placed at their disposal at West Kirby Convalescent Home by Mr. (afterwards Sir) Alfred Paton, and this became an independent unit known as the Liverpool Country Hospital for Children. Afterwards came the transfer to Heswall, amalgamation with the Liverpool Infirmary for Children, and the change of name to the Royal Liverpool Children's Hospital as at present. It is now, with its three branches, an institution of four hundred beds. It may be said to owe its origin to Macalister's vision and energy forty-five years ago—ten years before even the Treloar Homes at Alton were founded. Of both the Royal Liverpool Hospital for Children and the Royal Southern (now incorporated in the Royal Liverpool United Hospital) he was made consulting physician on his retirement. He was also formerly honorary physician to the Leasowe Hospital for Children and to the Liverpool Schools for the Deaf and Dumb and the Adult Deaf and Dumb Benevolent Institution.

As lecturer on clinical medicine at the University of Liverpool he had an influence on several generations of undergraduates. He had been president of the Liverpool Medical Institution and the Biological Society, and was a frequent contributor to the medical journals. In the B.M.A., which he joined in 1888, he was vice-president of the Section of Diseases of Children, including Orthopaedics, when the Association met in Liverpool in 1912. From its inception he had been associated with the Liverpool Scottish Territorial Regiment, and during the war of 1914–18 he remained with it as surgeon major, and carried out a great deal of inspection and other work in the Western Command. He was physician-in-charge of the Arrowe Hall and Croxteth Hall Military Hospitals.

On his retirement in 1927, at his beautiful home at Bourton-on-Water, Gloucestershire, Dr. Macalister devoted himself to writing Liverpool hospital history from a personal point of view. In 1930 he brought out a history of the Royal Liverpool Country Hospital for Children, and this was followed in 1936 by a volume narrating the origin and history of the Royal Southern Hospital. Earlier writings of his concerned the history of ambulance in warfare, child welfare and its organization, and the education of deaf-mutes.

Dr. DAVID ST. HELLIER HORGAN, who died in Lisbon on Sept. 10, was born at Cork in November, 1884. He was educated at Clongowes Wood College and at Queen's College, Cork. After qualifying M.B., B.Ch.(N.U.I.) in 1909 he joined the R.N., being stationed at Crete during the greater part of his two years' service. Wishing to specialize in ophthalmology, he left the Service in 1911 and, after acting for one year as house-surgeon at the Oxford Eye Hospital, obtained the D.O.(Oxon). He then obtained the position of ophthalmic surgeon to the Egyptian Government. Finding the work in Egypt uncongenial he resigned that position early in 1914, returning to his native town, where he carried on a very successful practice as an ophthalmic surgeon. Since 1922, when he retired from practice, Dr. Horgan lived in Lisbon, where he was a well-known and respected member of the British community, and at his lovely home at Cintra a warm welcome was always extended to passing British and Irish friends.

Dr. KINGSLEY WASSELL LEWIS of Pontypridd, Glamorgan, died suddenly on Sept. 14. The eldest son of the late Dr. B. M. Lewis, he was born at Pontypridd in 1890; he was educated at Mill Hill School, University College, Cardiff, and University College Hospital, London, where he won the Fellowes Gold Medal. Almost immediately after qualifying M.R.C.S., L.R.C.P. in 1914 he joined the R.A.M.C.S.R., and served for a year in France and for two years at Salonika, where he attained the rank of major. On returning to England he held the posts of house-physician and house-surgeon at U.C.H., and graduated M.B., B.S.Lond. in 1921. Dr. Lewis was for a long period surgeon to the Pontypridd and District Hospital. He joined the B.M.A. in 1919 and was chairman of the North Glamorgan and Brecknock Division in 1936–7. A correspondent writes: Many tragedies have befallen the mining districts of South Wales in recent years, but it is doubtful if any has suffered more by the death of one man than has befallen the town and district of Pontypridd by the tragic death of Kingsley W. Lewis. In 1915 he went abroad as second in command of a motor ambulance convoy. Later he was appointed M.O. of the 11th Battalion the Welch Regiment, with whom he served on the Somme. Subsequently he became registrar to the 29th General Hospital at Salonika and was invalided home in 1918. After a period in hospital he was attached to a military hospital in Colchester, and in 1919 he joined his father in general practice at Pontypridd and very soon became a very familiar and greatly loved personality in the town of his birth. It is felt by his friends and patients that he worked himself, in the early 'twenties, almost to a standstill, with the result that his constitution became undermined and he was unable to stand the strain placed upon him by the abnormal amount of work which he was called upon to do in this war. Dr. Kingsley Lewis had to struggle single-handed with a large practice in a district in which the population was substantially increased by the arrival of evacuees, and

many others. No one ever heard him complain of the extra work, his time and skill were still at the disposal of his patients, his own pleasures and time for recreation and rest were resolutely put on one side, and his friends saw less of him than ever before. Ever since the outbreak of the war he had served on the Local Medical War Committee of the North Glamorgan and Brecon Division of the British Medical Association.

Dr. HAROLD HENRY STIFF died on Sept. 16, aged 70. He had lived at Winchester for some years past, but spent the greater part of his professional career in general practice at Bury St. Edmunds, where he was honorary surgeon to the West Suffolk Hospital. From Dulwich College he went up to Caius College, Cambridge, in 1892, and then to St. George's Hospital, where after graduating M.B., B.Ch. in 1902 he served as house-physician; he also held the post of house-surgeon at the West London Hospital. Dr. Stiff was for two years in the British Expeditionary Force with a temporary commission in the R.A.M.C. He had joined the B.M.A. in 1903, was chairman of the West Suffolk Division in 1922-3, and represented that Division at the Portsmouth Annual Meeting in July, 1923. A correspondent writes: Dr. Harold H. Stiff, who has died at Winchester in his seventieth year, was well known in Suffolk through his many years of practice in Bury St. Edmunds, especially as surgeon, and in due time consulting surgeon, to the West Suffolk General Hospital there. He was educated at Cambridge University and St. George's Hospital, where he filled all the resident posts with great credit to himself. Dr. Stiff was an all-round general practitioner of quite unusual attainments; and as he had also a conciliatory address, a kind heart, and tact in his dealings with patients, it is not surprising that he attained very marked success in Bury St. Edmunds and carried with him in his retirement the good wishes of a very wide section of that part of East Anglia where he had been in harness ever since he finished his London resident appointments.

The death of JOHN OVEREND PRIESTLEY on Sept. 21 at the early age of 44 removes one whom the gods may well have loved but with whom the fates dealt in tragic manner. A correspondent writes: Leaving Charterhouse no more than a plucky boy he was flying in the R.A.F. over enemy lines by the time he was 18, and down in flames on the wrong side of those lines not much later. With the war over he entered the Middlesex Hospital Medical School and qualified in the minimum possible time, gaining the Hetley prize in clinical medicine. As house-physician to Dr. Voelcker he profited from the extraordinary powers of observation of that master and quickly exhibited a flair for diagnosis. Seeing these possibilities widen every day he took up radiology, obtained the D.M.R.E., and went back to the R.A.F. as medical officer. He was the first man in this branch of the Services with any special qualification in *x*-ray matters, and in a short time the result of his knowledge was an improvement both in methods of radiological examination and in *x*-ray technique. He was in his *métier*, he liked Service life, and he was able to feel that he could contribute to the advancement of at least one branch of medicine; then fate stepped in and dealt him a blow from which he never really recovered: he had developed phthisis. Priestley put himself in the hands of a sanatorium chief whose creed and practice were to get his patients back to work at the earliest possible moment. So within 6 months the patient started to build himself a practice in the country. He built up three practices over a period of 15 years with frequent rests for recuperation. But he never really got on his feet; he played a losing game with pluck and determination, yet seeing the years slip by, with himself not quite so well each year. "Jack" Priestley was exceptionally endowed; his quick eye and sensitive hand served him in the air, by the bedside, and alongside the rivers in Ireland where many an hour was spent. At heart he was a countryman, and those especially who knew him from boyhood grieve as they wonder how it was that a benevolent fate so seldom appeared in shaping his destiny.

We regret to announce the death of an old friend of this *Journal*, Dr. F. WILLIAM COCK, who after retiring from practice in London devoted himself to his hobby, antiquarian research, and was recognized as one of the best authorities on the archaeology of the county of Kent. Frederick William Cock, son of Frederick Cock, M.D., was born in London in 1858 and studied medicine at University College, London, and at Newcastle, graduating M.B. and M.S. of the University of Durham, with highest honours, in 1884 and M.D. in 1886. Having worked as senior resident at the Newcastle-upon-Tyne Infirmary Dr. Cock returned to London and became well known as a skilful part-time anaesthetist. For 15 years he held the post of anaesthetist to the Dental School of Guy's Hospital, and during the last war was appointed honorary anaesthetist to the King George Hospital. He joined the B.M.A. in 1889 and was an active member of the Harveian Society of London, holding office as president in 1906. For 46 years he had been a liveryman of the Society of Apothecaries. He was a Fellow of the Society of Antiquaries, a member of the council of the Kent Archaeological Society, and a J.P. for Kent. His ancestors had long been established in the neighbourhood of Romney Marsh, and it was natural that William Cock, with antiquarian tastes and love of local history, should settle in retirement at Appledore, Kent, to live among his books and old associations. His Kent library is one of the most complete and famous in the county. From time to time he wrote learned little notes on out-of-the-way subjects for these columns, and was always happy to answer questions coming within his range of expert knowledge.

The death of Mr. GEORGE MORGAN on Sept. 23 in a nursing home at Hove removes a veteran member of the B.M.A. who was for many years a leading figure in the medical profession of Brighton. Born at Market Drayton, Salop, in 1860, he was educated at Market Drayton and Auden Grammar Schools and came to London as a student of Charing Cross Hospital. He took the L.S.A. in 1883 and the M.R.C.S. and L.R.C.P. in the following year, and obtained the F.R.C.S.Ed. in 1895. At Charing Cross he won a senior scholarship and gold medal. He went to Brighton in 1885 as house-surgeon to the Royal Alexandra Hospital for Children, and after holding other house posts he was elected assistant surgeon in 1890, surgeon in 1895, and consulting surgeon in 1919. During the last war he held a commission as captain in the R.A.M.C. Mr. George Morgan joined the B.M.A. directly he gained his first appointment, and was always an enthusiastic believer in its usefulness to medical men, especially the younger generation. At the Brighton Annual Meeting in 1913 he held office as vice-president of the Section of Bacteriology and Pathology; he was president of the Sussex Branch in 1922–3, and chairman of the Brighton Division for two periods. At the age of 74 he wrote: "I believe in work, and am as fond of it as I was at 24. My chief hobby is the study of fungi, and as a member of the Mycological Society I attend all forays and lab. demonstrations." This hobby brought him into active membership of the Brighton and Sussex Natural History Society, of which he became vice-president.

Mr. GEORGE HEBB COWEN, consulting surgeon to the Royal South Hants and Southampton Hospital, died in a nursing home at Sarisbury, Hants, on Sept. 25, aged 71. A student of the London Hospital, he qualified in 1893 after winning an exhibition and gold medal in materia medica and pharmaceutical chemistry at the Intermediate London M.B. examination. He graduated M.B. (with honours in medicine and obstetric medicine) and B.S. (with honours in surgery) in 1894, proceeded to the M.S. in 1896, and took the F.R.C.S. a year later. His first appointment to the Royal South Hants and Southampton Hospital was in 1899 as assistant physician, but he changed to the surgical side of the visiting staff and also became consulting surgeon to the Southampton Borough Hospital and to the Romsey and District Hospital. Mr. Cowen joined the B.M.A. in 1902, and was president of the Southampton Branch in 1915. He was also an active member of the Southampton Medical Society until his retirement from practice in 1937, when he received a presentation from nearly one hundred doctors in the neighbourhood. Sixty colleagues attended the ceremony presided over by Sir Russell Bencraft, and speeches were made testifying to Mr. Cowen's great work in the town. Thenceforward he lived at Newbury, Berks.

Dr. HENRY BEDINGFIELD, formerly of Leeds, died at Rugby on Sept. 28. He was born on Dec. 10, 1889, and studied medicine at the University of Edinburgh and at University College Hospital, London. He graduated M.B., Ch.B.Ed., with honours, in 1911 and gained highest honours for his M.D. thesis in 1928. He took the M.R.C.P.Lond. in 1926. After qualification Dr. Bedingfield held house appointments at the Queen's Hospital for Children, Hackney Road, at the Hackney Infirmary, and at the City of London Chest Hospital. In 1913 he entered the R.A.M.C., and was on active service in 1914–19, winning the D.S.O. and retiring with the rank of major. While in practice at Leeds he published papers on visceroptosis and nervous dyspepsia in the *Quarterly Journal of Medicine* and the *Proceedings of the Royal Society of Medicine*. He joined the B.M.A. in 1917 and was honorary secretary of the Leeds Division from 1931 to 1941.

We have to announce the death on Sept. 29 of Mr. WILLIAM JOHN HARRISON, senior honorary surgeon to the Newcastle-upon-Tyne Throat, Nose, and Ear Hospital and aural surgeon to the Ministry of Pensions Hospital at Newcastle. He studied medicine at the Durham University College of Medicine and at St. Thomas's Hospital, London, graduating M.B., B.S. in 1899 and taking the English Conjoint diplomas in 1902.

Before settling in practice as an oto-rhinologist in Newcastle he held a house post at the London Temperance Hospital and travelled widely as a ship surgeon. During the last war he reached the rank of major in the R.A.M.C.(T.A.), was mentioned in dispatches and wounded in 1915; he received the Territorial Decoration in 1925. Mr. Harrison was consultant in his specialty at the Ingham Infirmary and had charge of the ear, nose, and throat department of the Fleming Memorial Hospital for Sick Children. He had served on the Council of the Laryngological Section of the Royal Society of Medicine and was a past-president of the Otological Section; he was also a past vice-president of the Newcastle-upon-Tyne and Northern Counties Medical Society. He joined the B.M.A. in 1909, and published a number of papers on otitis media and mastoid disease.

RAYNER DERRY BATTEN, who died on Oct. 22, was born at Plymouth in 1858, the son of John Winterbotham Batten, Q.C., and elder brother of F. E. Batten, the neurologist, and of J. D. Batten, artist and illustrator. He studied medicine at St. Bartholomew's and in Germany, and took his M.D.Lond. in 1886. He was H.S. at Bart's and R.M.O. at the Brompton and at Addenbrooke's. He was in general practice for a number of years in Kensington, but at the same time did ophthalmic work at Moorfields, where he became assistant surgeon, and in the end gave up general practice for eye work. He was surgeon at the Western Ophthalmic Hospital for 33 years, remaining on the Medical and Management Committees until the time of his death. He was a member of the B.M.A. until 1913 and was hon. secretary of the Section of Ophthalmology in 1901. He became vice-president of the Ophthalmological Society and a member of council of the Oxford Ophthalmological Congress. He was exceedingly happy in his family life, and of his four children two, a son and a daughter, followed him into the medical profession, while another daughter has worked for many years in the "welfare of the blind" department of the L.C.C. A colleague writes: Rayner Batten was essentially a clinician. Though slow to make up his mind he had the true clinical instinct, compounded of painstaking observation, wide experience, and a retentive memory. The years spent in general practice gave to his early work (e.g., a paper on the genesis of myopia) a background which may have faded somewhat in later years but was never entirely obliterated. Twenty years ago Batten suggested that the technique of ophthalmic surgery was not for the many but for the few, and should be confined to the few. Thus the practice of ophthalmology would be shared between ophthalmic physicians and ophthalmic surgeons. Something akin to this is now again under discussion. Batten's own operative skill was considerable. He had a light, sure touch, devoid of tremor, which endured until advancing deafness compelled his retirement. He attached great importance to "good hands" in all who did ophthalmic work. His life-long hobby was wood-carving, and possibly the "feel" of tools thus acquired inspired the design of some of his instruments. His fixation fork is still of value, and a hydrophthalmoscope, originally devised to examine the fundus in high myopia—a forerunner of the contact lens—is often used in the treatment of purulent conjunctivitis by hypertonic solutions. One of his last tasks, undertaken with the assistance of his artist-brother, was the training of fundus artists. The first group of artists was trained at the Western Ophthalmic Hospital under his supervision, and from these a school, which still continues to do excellent work, developed and was later, for a time, under the direction of Mr. Head. This was the source of all the present fundus-painting facilities.

RICHARD AUSTIN FREEMAN, M.R.C.S., L.S.A., who died at Gravesend recently at the age of 81, was one of those medical men who have forsaken medicine for literature—Somerset Maugham, Brett Young, Warwick Deeping are other contemporary instances. Like another doctor, Conan Doyle, he made his name by his detective fiction, an art in which very many have dabbled since Doyle's time, but in few cases with the success which attended Freeman. He was born in 1862, educated privately and at Middlesex Hospital, where he was H.P. after qualifying in 1886. Thence he went into the Gold Coast Medical Service, served in the Ashanti expedition of 1889, on the Anglo-German Boundary Commission of 1890, and was invalided out in 1891. For a time he was in general practice, but after five years of it went back into salaried employment, first in the Prison Medical Service and then under the Port of London. He served in home units during the 1914–18 war, and later became a Freeman of the Apothecaries Society. His first adventure in literature was as far back as 1898, when he published an account of Ashanti; but he soon found his *métier* as a writer of crime detection, and for nearly forty years had poured out a steady stream of well-written and popular fiction of this type. His methods were rather nearer to those of Conan Doyle than are some of the best-known modern exponents of the art; but he was no mere slavish follower, and in particular he constantly introduced developments of pathology and of medical research which either did not exist in Sherlock Holmes's day or were at any rate not utilized by the latter's creator. Haematology, endocrinology, morbid anatomy, bacteriology were all made to serve the purpose of Freeman's super-detective, Dr. Thorndyke, who was portrayed as a medical man specializing in forensic medicine and the tracking down of crime. Thorndyke's "Dr. Watson" was often a (suppositious) Christopher Jervis, always labouring to follow Thorndyke's deductions but always a day late in doing so. In addition, there was a wise old solicitor, Brodribb, who appeared in many of the stories, usually with some acute contribution to make to the solution of the mystery; but the most original character of all, and a very living one, was the crinkly-faced Polton, Thorndyke's laboratory technician, photographer, and general A.D.C. Not only were the plots original and skilfully constructed, the processes by which Thorndyke unravelled the crimes ingenious, and the crimes themselves often bizarre in the extreme, but in addition the victims and the criminals were drawn with real literary skill and often with great charm; it will suffice to mention the old drunkard in *Pontifex, Son, and Thorndyke*, and Shuttlebury Cobb in the novel of that name, as examples. In one book he sought to prove that the evidence of finger-prints may be highly deceptive—not because prints are themselves fallacious but because they can be counterfeited: dramatic as the denouement of this book was (and his climaxes were often highly dramatic) it was perhaps one of his less successful efforts. But in general Freeman kept steadily a very high level, and in his particular sphere of scientific-crime-detection novel-writing was well ahead of all rivals, even up to the advanced age at which he had only lately ceased to write. As with Conan Doyle, he seldom introduced any love interest; and his heroines, on the rare occasions when they existed, were apt to be rather wooden.

Universities and Colleges

UNIVERSITY OF LONDON

The Faculty of Medicine has elected Mr. John B. Hunter, M.Ch., F.R.C.S., to be its Dean from Oct. 1, 1943, for the remainder of the period 1942–4, in place of Sir Girling Ball, F.R.C.S., resigned.

UNIVERSITY OF LEEDS

Endowment of Prize in Anatomy

A year or two ago Major George Waddington of Collingham and Mr. Guy Waddington of Halifax decided to leave their bodies to the Anatomy Department of the Medical School. In each case the desire was to give aid to medical education, and their wishes were in due course carried out. Recently a group of relatives and friends of these two gentlemen, including Major Waddington's mother, presented to the University a sum of money to found a prize in anatomy in their memory. This prize, to be known as "The Waddington Prize," will take the form of books presented to the most promising student in the junior anatomy class at the Medical School. Mrs. Waddington, in handing over the cheque to the Professor of Anatomy, expressed the hope that the example of her son and her nephew might be followed by others; and in accepting the cheque on behalf of the University the Professor of Anatomy hoped that when others came forward to offer their posthumous services to medicine they might well consider combining the corporeal donation with some form of financial aid to the Medical School, as had been done by the Waddington family.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields on Thursday, Nov. 18, at 2.30 p.m., when a report from the Council will be laid before the meeting. Fellows and Members can obtain copies of the report on application to the Secretary, and the agenda paper for the meeting will be issued on or after Nov. 13 to those applying for it.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a quarterly meeting of the Council held on Oct. 23 in the College House, with the President, Sir William Fletcher Shaw, in the chair, Prof. J. J. Kearney was elected to the Membership of the College.

The following were admitted to the Membership: J. K. Baker, J. Kruger, and Katharine I. Liebert.

It was announced that the donor of 1,000 guineas to commemorate the presidency of Sir William Fletcher Shaw wished the

interest to endow a lecture every second year to be given alternately (1) by a member of the College on the subject of infertility and (2) by a gynaecologist from the U.S.A. as an expression of the friendship existing between the two nations. At the end of the meeting, Prof. D. Dougal, Manchester, assumed the office of Vice-President and Mr. Eardley Holland, London, assumed the office of President. A vote of appreciation for the services of Sir William Fletcher Shaw during the past five years as President and during the whole period since the inception of the College was adopted by the Council.

The following have satisfied the examiners and have been awarded the Diploma of the College:

Agnes U. Campbell, W. H. Carlisle, J. T. Carroll, J. McD. Corston, Margaret C. S. Crocket, R. W. Danziger, Grace T. Dawson, Mary E. Egerton, Charlotte L. Hess, P. C. Lewis, Eileen C. Miller, Mary L. Neville, Mary P. Short, J. W. H. Simpson, Esther M. Swinnerton, J. W. Totten, A. H. C. Walker.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the annual meeting of the Faculty the following officers were elected for the ensuing year: *President*, Mr. James H. MacDonald; *Visitor*, Mr. William A. Sewell; *Honorary Treasurer*, Mr. William J. Richard; *Honorary Librarian*, Dr. W. R. Snodgrass; *Representative on the General Medical Council*, Mr. Andrew Allison.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examination, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.&S.Glasg.:

A. C. Austin, F. St. M. Brett, E. D. Cameron, Margaret R. Connolly, M. C. Fitch, E. Frischler, E. Glekin, Elizabeth G. Hood, J. G. Levack, I. M. Lourie, S. R. Maraj, J. W. Muggoch, D. J. P. Naismith, Elizabeth R. B. Polland, J. T. Richardson, Frances Selesnick, A. M. Shokry, H. M. Steel, A. D. Willox.

The following graduates of recognized foreign universities were also admitted licentiates:

K. Friedmann, M.D.Vienna; G. W. Green, M.D.Brussels; Ruth Meier-Blaauw, M.D.Breslau, G. M. Weiss, M.D.Bologna.

The Services

Temp. Surg. Lieut. R. R. Dickson, R.N.V.R., has been mentioned in dispatches for constant and untiring devotion to duty and great skill in tending the wounded survivors from a torpedoed merchantman.

Temp. Surg. Lieut. I. S. Jacklin, R.N.V.R., has been posthumously mentioned in dispatches for gallantry in organizing the survivors from a torpedoed merchant ship and in swimming from raft to raft, in waters where sharks were known to be present, in order to tend the injured.

Capt. I. Joseph, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in Sicily.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. F. M. Steel, War Subs. Capts. E. M. Leyland and J. R. Tocher, R.A.M.C.

Prisoner of war.—Temp. Major K. C. Hutchin, R.A.M.C.

Reported missing at sea.—Lieut. R. A. Palmer, R.A.M.C.

Missing on active service.—Surg. Lieut.-Cmdr. S. L. Lord, R.N.V.R.

Missing at sea.—Capt. R. M. Sharpe, R.A.M.C.

Died on active service.—Major K. C. Eden, R.A.M.C.; Fl. Lieut. W. S. Pitt-Payne, R.A.F.V.R.

Died.—Col. W. B. Rennie, M.C., War Subs. Capt. A. E. Locke, R.A.M.C.

REPATRIATED MEDICAL OFFICERS

Major-Gen. G. A. D. Harvey, C.B., C.M.G., late R.A.M.C.; Lieut.-Cols. T. A. S. Samuel, M.C., F. J. Morris, M.C.; Majors J. Burns, J. H. T. Challis, W. N. S. Donaldson, G. C. Steel, E. R. C. Walker, W. E. Tucker, J. A. Chapel, R. L. Mackay, M.C., C. H. Imrie; Capts. A. D. Aveling, E. R. Dansie, P. A. Forsyth, R. W. Gunderson, I. Jacobson, J. D. Recordon, G. E. Stoker, N. D. Allan, T. K. Elliott, G. S. Trower, W. C. Harris, M. A. Egan, E. M. Fraser, R.A.M.C.

DEATHS IN THE SERVICES

News has been received of the sudden death in Persia from acute nephritis of Capt. J. H. B. ROUND, M.A., M.B., B.Ch., R.A.M.C., aged 30. He was the only son of Mr. and Mrs. Harold Round of Edgbaston, Birmingham. He studied medicine at Pembroke College, Cambridge, and the Westminster Hospital Medical School, to which he won an entrance scholarship. While at Cambridge he was secretary to the Cambridge Medical Society. After graduating he served as house-physician at Westminster Hospital and then returned to Birmingham as the first medical officer to the Castle Bromwich Aero Factory and organized their medical services. Subsequently he was appointed as the first medical officer of the Midland Group of the Nuffield Factories, and held this position until he joined the R.A.M.C. in August, 1941. Dr. Round was one of the modern pioneers in industrial medicine, and had made valuable contributions to its present conception.

Col. SIDNEY MARTIN HATTERSLEY, M.C., late R.A.M.C., who died on active service from illness on March 24, had a distinguished military career lasting 30 years. He studied medicine at Cambridge University and St. Bartholomew's Hospital, qualifying M.R.C.S., L.R.C.P. in 1912. He took the M.B., B.Ch. degrees at Cambridge in 1916, the D.P.H. in 1925, and proceeded M.D. in 1931. After qualification he served as house-physician at Manchester Royal Infirmary. As a junior officer in the R.A.M.C. he was taken prisoner in September, 1916, while serving over-seas, and in October, 1919, was awarded the Croix de Guerre, having already won the Military Cross. He was promoted to the rank of colonel in September, 1938, and for his services during the present war was mentioned in dispatches at the end of 1941. He joined the B.M.A. in 1912.

Medical Notes in Parliament

Food Values and Farming Methods

In the House of Lords on Oct. 26 Lord TEVIOT called attention to food values in relation to agricultural methods in view of their importance to the health of man, animal, and plant. No one, he said, who was connected with agriculture could be other than perturbed at the number of diseases among our farm stocks, while the diseases among crops were legion. The object behind his motion was to see that we put planning for the health of our people, animals, plants, and crops first. While the spirit of our people was magnificent and their courage undaunted, their bodily conditions were bad. A report from the B.M.A. summed up the whole situation in this way: "While hundreds of millions are expended in trying to cure, only one-fifth of 1% of the national expenditure and waste through ill-health goes on research to find out, not how to cure but how to prevent." He was entirely in agreement with a balanced diet, but unless the components came from a healthy soil rich in humus, there would be a deficiency of life-giving, disease-resisting properties. We had a sort of cycle—a healthy soil, a healthy plant, a healthy animal, and then a healthy man—and it was the integrity of that life-circle which was so important. We must plan to put back into the soil those things which we took from it. A council of nutrition was suggested some time ago. He hoped it would be set up and that it would take into serious consideration not what we should all eat but whence it came and how it was cultivated. He begged for a Royal Commission or a committee of inquiry in order to combat the present tragic state of affairs.

Destruction of Fertility

The EARL OF PORTSMOUTH said very few doctors would advise their patients continuously to use strong antiseptic nasal sprays; if they did the living membranes would suffer and have no power left of resistance to disease. We were doing exactly that to the soil. With lethal sprays we were destroying the soil's power of resistance, and at the same time were giving continuous doses of chemical food and chemical stimulants so that the infinite complex of bacterial life in the soil was being upset. We were upsetting the vitamin content—that was, the capacity of the soil to produce food—by destroying the humus within the soil itself.

Lord GEDDES pointed out that in Prince Edward Island there was a very high standard of health, an extraordinarily vigorous active population, and, quite remarkably, after 50 years of close examination no fall whatever in the birth rate. The population there drew their fresh food from the sea and from the field in the traditional manner, living on simple foodstuffs and the products of their own farms and fishing.

Northern Rhodesia, which had been depopulated by disease, was not an easy country to get people of another race into, and to keep them there in a good state of health. They had given the people food grown on rich humus soil with plenty of life in it. In the result they had beaten back disease and turned that part of Northern Rhodesia into what was a health resort. The positive health of these people was based on food. He supported Lord Teviot's plea for some work to be done in this country to follow up the work now being done in Canada.

Viscount BLEDISLOE pressed strongly on the Government that the time had come when there ought to be research: research not merely conducted in watertight compartments—the health of plants, the health of animals, and the health of human beings—but comparative research on the important problem of the interrelation between the morbid conditions of soil, plants, animals, and human beings. Very valuable research was being done to-day in New Zealand on diseases of animals and fish. What the doctors did not know, however, was the relation, if any, between the deficiencies in the animals and several mysterious morbid conditions of the human population of

New Zealand. Everywhere doctors were very anxious that research should be instituted into the subject. After a recent debate in the House of Lords he asked some agricultural experts whether phosphate deficiency of pastures was transmitted to the milk of cows fed on those pastures, and if so what effect it had on human beings. There was, however, no knowledge in this country on that subject to-day.

Effect of Fertilizers

The DUKE OF NORFOLK, replying to the debate, deprecated any suggestion of antagonism between chemical fertilizers and humus. There was no evidence whatever, from farming or medical experience, or from the scientists, that the proper and balanced use of fertilizers had any harmful effect on the soil, on the health of crops, or on men. Sir Daniel Hall had said that disease was not a product of modern high farming with chemicals, though it might be the mark of their use in an ignorant manner. So far as this country was concerned our safeguard lay, as ever, in the sound principles of mixed farming. The Ministry of Health was not aware of any medical evidence in support of the view that food produced from soil which had been fertilized by artificial manures was in some cases dangerous to health. The value of a certain amount of humus was beyond all argument, and he thought it might be a mistake if this question were raised to so high a level as the realm of political controversy. He would bring Lord Teviot's request for an inquiry or a Royal Commission to the notice of the Minister of Agriculture and the Ministries of Health and of Food.

Regulation 33B

Dr. SUMMERSKILL asked whether the Minister of Health was satisfied that Regulation 33B had any appreciable effect in reducing the incidence of venereal disease in view of the fact that it had only been brought into operation against 110 individuals. Mr. BROWN said that in his opinion the regulation was effecting its purpose and would increasingly assist medical officers of health in getting into touch with infected persons and inducing them to undertake voluntary treatment. The 110 persons referred to were cases reported more than once up to June 30 last as alleged sources of infection. In addition about 1,780 other cases were the subject of report, but of one report only. Answering a further question, Mr. Brown said he was not going to introduce compulsory notification at the moment. That would require other drastic measures to make it effective. Otherwise the disease might be driven underground. Dr. SUMMERSKILL gave notice that she would raise the question on another occasion.

Yellow Fever Research in Africa

Co-ordination of research on yellow fever in Africa is centred in the Yellow Fever Research Institute at Entebbe, Uganda, which is a unit of the International Health Division of the Rockefeller Foundation. The staff of the institute has carried out immunity test surveys of groups of persons in Uganda, Northern Rhodesia, Kenya, Tanganyika Territory, the Sudan, the Belgian Congo, Somalia, and Eritrea, and the results have been circulated to the Governments concerned. Research on possible reservoir hosts of yellow fever virus and on *Aëdes* and other potential mosquito vectors of yellow fever is being continued. The executive control of yellow fever is the responsibility of the Colonial Governments and the Service authorities, who are advised by and receive copies of the reports of the Director of the Institute and the London Interdepartmental Control Committee. The various control measures which have been introduced are designed particularly to prevent the possibility of an outbreak of yellow fever such as occurred in the Anglo-Egyptian Sudan in 1940–1.

Food Relief for Greece

On Oct. 26 Mr. STOKES asked the Parliamentary Secretary to the Ministry of Economic Warfare whether the supplies of milk and vitamin concentrates included in relief shipments to Greece since April were an addition to the supplies previously permitted to pass through the blockade; and whether he could give an assurance that these supplies fully satisfied the appeals for additional supplies made by the Swedish-Swiss Commission. Mr. FOOT said that the supplies of milk authorized in June represented an increase in monthly amounts previously allowed. The commission in June requested the dispatch of 260 tons of powdered milk or 600 tons of condensed milk a month. It was decided to authorize monthly shipments from July of 300 tons of condensed milk and 300 tons of evaporated milk. This replaced previous monthly allotments of 300 tons. A new six months' programme for vitamins was submitted by the commission in June, which represented in some respects a slight increase in the rate of supplies. These supplies, so far as they were obtainable, were being procured and dispatched.

The White Paper

On Oct. 26 Sir E. GRAHAM-LITTLE asked the Prime Minister whether, as the institution of a universal free health service conducted by full-time salaried medical officers involving the ultimate extinction of private practice came into the category of a far-reaching change of a controversial character not directly needed for the war effort, he would declare that decisions regarding such a service should not be made without a general election. Mr. ERNEST BROWN, who replied, said he thought his hon. friend should first await the promised White Paper, so that he might see what proposals were in fact put forward in it as the basis for public discussion before he raised the last part of the question.

In a reply on the same day to Mr. Maclean, Mr. T. JOHNSTON said that the Government was considering the recommendations of the Hetherington Committee in formulating its proposals for a new national health service. It was the Government's intention, in advance of proposing legislation on the subject, to lay a White Paper on the table of the House at an early date as a basis of discussion and negotiation.

Exchequer Help for Tuberculous

Mr. JACKSON inquired on Oct. 28 why tuberculous patients considered hopeless cases and those suffering from non-pulmonary tuberculosis were excluded from the benefit of the new financial allowances paid by local authorities. Miss HORSBRUGH replied that special arrangements were authorized to enable persons to give up work temporarily for treatment in the interest of the public health no less than their own. The association with the war effort which had been the justification in such cases for making repayment from Exchequer funds under emergency powers was not applicable to the cases to which Mr. Jackson referred. That fact did not affect the power of local authorities to grant assistance within the scope of their statutory powers.

Immunization.—Up to June 30 last the total number of children who had been immunized under local authority arrangements in England and Wales was approximately 4,400,000. Allowing for additional immunization by private arrangement it is probable that substantially more than half the child population is protected at present.

Medical News

Prof. L. G. Parsons will give the first Charles West Lecture before the Royal College of Physicians of London on Tuesday next, Nov. 16, at 2.15 p.m., at the College, Pall Mall East. Subject: "The Prevention of Neonatal Disease and Neonatal Death."

A meeting of the Tuberculosis Association will be held at Manson House, 26, Portland Place, W., on Friday, Nov. 19, at 3.15 p.m. for a discussion on immunity-producing measures in tuberculosis.

The Postmaster-General announces that it has been agreed at the request of the Treasury to release Sir Henry Bashford, M.D., F.R.C.P., from the post of Chief Medical Officer to the Post Office in order that he may take up his new appointment as Treasury Medical Adviser. Dr. W. L. Scott, *M.C.*, second medical officer, has been appointed Chief Medical Officer to the G.P.O. in succession to Sir Henry Bashford, and Dr. C. G. Roberts, assistant medical officer, has been appointed second medical officer.

At a meeting of the London Association of the Medical Women's Federation, to be held in the Common Room of B.M.A. House on Saturday, Nov. 20, at 3 p.m., Dr. Ian Skottowe will read a paper on some current methods of treatment in psychological medicine. Medical men and women guests are invited.

A discussion on the state of nutrition in enemy-occupied Europe, introduced by Lord Horder, will take place at a meeting of the Section of Medicine of the R.S.M., 1, Wimpole Street, W., on Tuesday, Nov. 23, at 4.30 p.m. It will be opened by Col. W. E. Vignal and Dr. A. P. Cawadias, followed by Prof. James Young and Dr. Izod Bennett.

At a members' meeting of the Eugenics Society to be held on Tuesday next, Nov. 16, at 5 o'clock, at the rooms of the Royal Society, Burlington House, Piccadilly, W., Mr. R. M. Titmuss will speak on "Social Environment and Eugenics." All interested in the subject are invited to attend.

A Diagnosis Section meeting of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, Nov. 20, at 10.30 a.m., when papers will be read by Capt. P. P. Hauch, R.C.A.M.C., on pneumoroentgenography of the knee-joint (illustrated by a film), Dr. E. Rohan Williams on venous intravasation during uterosalpingography, and Dr. John Wilkie on a case of Albright's disease, followed by a discussion.

The Central London Fabian Society announces that Dr. Stark Murray will speak on "A National Health Service" on Tuesdays at 7.30 p.m. at the Artworkers' Guild Hall, 6, Queen Square, W.C.1. Nov. 23, "A Personal Health Service"; Dec. 7, "Administration and Control"; Dec. 21, "The Ultimate Aim."

At the next quarterly meeting of the Royal Medico-Psychological Association on Nov. 24 at 1, Wimpole Street, London, W., a discussion will be held on post-war psychiatry.

A course of instruction for a Diploma in Psychological Medicine will open at the Maudsley Hospital on Jan. 3.

The July number of the *East African Medical Journal*, of which copies have now reached London from Nairobi, is devoted to the practical problem of human nutrition in its most important local aspects. Inspired by the Director of Medical Services in Kenya, it sets forth the evidences of malnutrition among some of the native populations, the methods adopted in that colony to deal with the present shortages of various essential foodstuffs, and the lines along which progress in these matters may best be attempted. There are eight signed articles, prefaced by a judicious editorial, and the whole number reflects great credit on Dr. A. J. Jex-Blake and his colleagues of the editorial committee; it deserves wide circulation in the large area concerned.

The Board of Education announces that by arrangement with the Ministries of Food and of Health supplies of cod-liver oil and orange juice are to be available for administration during school hours to children under 5 years at elementary and nursery schools. Ferrous sulphate tablets, 3 gr., are also to be available for children selected by the medical officer as suffering from anaemia.

For the third winter in succession the Ministry of Health, in co-operation with the Ministry of Information, is launching a campaign to reduce the spread of coughs, colds, influenza, and other droplet infections. The public will again be urged to avoid careless coughing and sneezing. The campaign will continue until March. The Board of Trade will co-operate by including in its "Make do and Mend" advertisements advice on making handkerchiefs out of worn-out sheets, etc. The Central Council for Health Education is again co-operating by offering health leaflets and posters for sale to local authorities.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of infectious diseases remained steady, with the exception of measles, which fell by 129 cases. The largest of the local decreases were in Kent, by 35, and in Durham, by 31 cases. The rise in notifications of scarlet fever, which had persisted for eight weeks and had resulted in the weekly totals mounting from 1,516 to 3,324, was temporarily checked; 7 fewer cases were reported than in the preceding week.

Notifications of dysentery, which have been high for the last two months, dropped by only 4. The largest of the new local outbreaks were in Glamorganshire, Rhondda U.D. 12; Soke of Peterborough, Peterborough M.B. 11. Big rises in existing outbreaks were recorded in Surrey from 5 to 34 (Kingston-on-Thames M.B. 31), and in Northumberland from 2 to 30 (Newcastle-upon-Tyne C.B. 25). Other large centres of infection were London with 65 cases in twenty boroughs; Middlesex 17; Lancashire 14; Yorks North Riding 14 (Richmond R.D. 10).

In *Scotland* rises were recorded in the notifications of diphtheria, 35 more, and scarlet fever, 29 more, the totals being the largest during recent months. The increase in diphtheria was fairly general, but that for scarlet fever was mainly confined to the western area. There were 17 fewer notifications of dysentery, and the total, 45, was the lowest since the beginning of June.

In *Eire* diphtheria notifications went up from 99 to 187, and those for diarrhoea and enteritis from 35 to 93. The largest of the outbreaks of diphtheria was in Limerick (Rathkeale R.D. 61). Of the 93 cases of diarrhoea and enteritis 81 were reported in Dublin C.B.

In *Northern Ireland* the outbreak of diphtheria in Londonderry C.B. persisted, 14 fresh cases occurring during the week. The Foyle Hill Hospital, which had been closed for a number of years, was reopened to cope with the increase of this disease and scarlet fever. Of the 85 cases of diphtheria notified during October, only 1 had had a complete course of immunization.

The Week Ending October 30

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 3,623, whooping-cough 1,693, diphtheria 702, measles 585, acute pneumonia 576, cerebrospinal fever 26, dysentery 248, paratyphoid 5, typhoid 7.

No. 42

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 23.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	46	2	19	2	4	66	5	21	—	6
Deaths		—	1				—	—		
Diphtheria	725	44	233	187	41	971	53	257	76	20
Deaths	11	1	2	2	1	21	—	4	1	—
Dysentery	249	65	45	2	—	177	30	59	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	2	—	2	—	—		—
Deaths		—					1			
Erysipelas			67	6	1			58	9	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				93					59	
Deaths	51	6	14	25	6	48	2	15	13	3
Measles	546	50	47	17	—	6,803	360	379	40	30
Deaths	1	1	—	—	—	7	—	1	—	—
Ophthalmia neonatorum	91	13	13	—	—	68	3	13	2	1
Deaths										
Paratyphoid fever	—	—	1	—	—	7	1	3	—	
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	579	41	19	1	5	659	39	6	—	2
Deaths (from influenza)	13	4	8	1	3	18	1	1	—	—
Pneumonia, primary		32	195	11				164	19	8
Deaths				8	12		—		7	
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	13	—	—	—	—	25	1	—	28	—
Deaths		—					—	—		
Puerperal fever		3	15		—	—	6	10	3	—
Deaths							—			
Puerperal pyrexia†	158	15	10	2	1	162	8	10	—	1
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	3,317	316	445	67	105	2,619	169	430	59	50
Deaths	1	—	—	1	—	1	—	—	—	—
Smallpox	—	—	—		—	—	—	7		—
Deaths				—	—				—	—
Typhoid fever	7	—	—	13	—	12	2	6	8	2
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough	1,459	103	154	10	22	984	64	21	36	6
Deaths	13	1	1	1	—	6	—	—	3	—
Deaths (0–1 year)	358	49	67	43	19	314	27	67	25	27
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,089	627	612	199	124	3,818	523	550	182	
Annual death rate (per 1,000 persons living)			13·8	13·1	‡			12·4	12·2	‡
Live births	5,973	704	859	395	283	5,847	715	899	380	260
Annual rate per 1,000 persons living			17·5	26·0	‡			18·6	25·4	‡
Stillbirths	200	24	37			188	17	39		
Rate per 1,000 total births (including stillborn)			41					42		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Chronic Infective Sinusitis

Q.—*May I have suggestions for the treatment of sinusitis affecting the maxillary and frontal sinuses and probably the deeper sinuses? The affection is of some standing. The age of the individual is 50. Is there any drug of the sulphonamide group which is recommended, and if so, what form of drug, what dosage, and what form of administration? Radiant heat and suchlike remedies have already been exploited, with small benefit and improvement for a short period only.*

A.—The variety of treatments for chronic sinusitis is a gauge of its obstinacy. It is worth while first finding out by bacteriological examination of nasal swabs if there is a specific infecting organism, of which the most frequent are the haemolytic streptococcus, pneumococcus, *Staph. aureus*, Pfeiffer's or Friedländer's bacillus. The first two of these organisms are more susceptible than the others to sulphonamides, which are more likely to be effective in preventing a flare-up of the sinusitis after an acute coryza than in curing the chronic condition. Sulphamezathine, sulphadiazine, or sulphathiazole in doses of 1 g. by mouth 4-hourly should be given for 2 to 3 days after onset with the patient in bed or resting indoors. Continue with further smaller doses for another 2 to 3 days. An attempt at cure with an autogenous vaccine may be made, and in this connexion it is worth remembering that chronic sinusitis may be an allergic condition, so that dosage should at first be small and carefully graded. If during an acute attack there is obstruction to the discharge with pain over the sinuses, a few drops of 0.5% ephedrine in normal saline followed by argyrol instilled into the nostrils will often give relief. To relieve the chronic nasal obstruction which may be troublesome in the chronic state, giving rise to symptoms of chronic sore throat and bad taste in the mouth, an ammon. carb. or pot. iod. mixture (2- to 3-gr. doses) may be taken in the evening. The patient should be advised about maintaining his general health by regular habits and a well-balanced diet, and he should at all times take more than ordinary precautions to avoid catching colds. (See *B.M.J.*, Sept. 4, 1943, p. 318.)

Physical Training and Female Fertility

Q.—*Is there any truth in the belief that excessive physical strain may produce sterility in a woman? I was asked this question recently by a girl about to embark on physical training as a career.*

A.—There is no scientific evidence, known to the writer, to support this belief. Many girls who excel at physical training or athletics are naturally inclined to such pursuits by reason of their endocrine make-up. They are sometimes of masculine type, with a muscular, heavy build. Such women undoubtedly tend to have impaired fertility and complicated pregnancies and confinements, but these features should be regarded as further evidence of slight endocrine imbalance rather than the result of physical exercise. If the girl in question is essentially feminine then the pursuit of physical training should not affect her fertility.

Another Rh Question

Q.—*Is there any evidence that congenital haemolytic disease is less severe when the birth has been by Caesarean section performed prior to or early in labour—that is, does the process of parturition cause an increased transference of the anti-Rh agglutinin from the Rh-negative mother to her Rh-positive foetus? Likewise is there an increased transference of the Rh agglutinogen from the foetus to the mother? It has been stated that the mother's antibody titre is highest between the 7th and 21st days of the puerperium; this would presumably be consistent with an increased transference of the Rh factor from the foetus during parturition.*

A.—Rh-negative mothers with anti-Rh agglutinins in the blood sometimes show a fall in the agglutinin titre for a few days after parturition, followed by a sharp rise to a maximum 2 to 4 weeks later. This is thought to be due to an increased transference of Rh agglutinogen from the foetus, probably owing to the escape of foetal blood into the maternal circulation during parturition. A similar explanation is thought to account for the almost constant sharp rise in maternal iso-agglutinins after a hetero-specific pregnancy (Group O mother with Group A or B foetus; A or B mother with B, A, or AB foetus). The condition is comparable with that observed in the recipient of an incompatible transfusion, where the iso-agglutinin titre at first falls owing to absorption by the transfused antigen, and later rises sharply; this is well seen in a mother with anti-Rh agglutinins who is transfused with Rh-positive blood.

Very little is known about the quantitative aspects of the passage of anti-Rh agglutinins from mother to foetus. It is not always possible to demonstrate them in the cord blood of affected children even when the mother's titre is high, but when demonstrable the titre is always lower than the mother's. Such differences have been observed both in natural and in Caesarean births, though the number of cases fully studied is small. Caesarean section has been advocated on account of the great liability to intranatal death from foetal asphyxia. Protracted and difficult labour is therefore dangerous, and the lower uterine segment operation under local or spinal anaesthesia has been preferred, since general anaesthesia and the use of sedatives are undesirable from their liability to depress the foetal respiratory centre. A common cause of foetal asphyxia in such babies is intracranial haemorrhage, to which there is a special liability from the associated haemorrhagic tendency in haemolytic disease of the newborn. There is no evidence that haemolytic disease is less severe when the birth is Caesarean, and the chief advantage claimed for such interference is a diminished risk of complications such as intracranial haemorrhage and foetal asphyxia.

Progressive Muscular Atrophy

Q.—*Removal of the thymus gland has recently been advocated in the treatment of certain forms of myasthenia. In view of this I would be grateful to learn whether there has been any recent investigation into progressive muscular atrophy, and of any advance in the treatment of this most heartbreaking condition.*

A.—There is no recent work about the treatment of progressive muscular atrophy. Its onset is not related to any disturbance of function at the myoneural junction, but it appears to be primary degeneration of anterior horn cells, of unknown origin. Treatment is purely palliative, being aimed at conserving the patient's strength. Vitamin therapy has not been proved of use.

Inhibiting Secretion of HCl

Q.—*What has been found experimentally to diminish or abolish free hydrochloric acid in a normal stomach?*

A.—The secretion of free hydrochloric acid is inhibited by the intravenous or intramuscular injection of urogastrone, a water-soluble substance obtainable from the urine of dogs and man. Urogastrone is possibly identical with enterogastrone, a substance which is formed in the intestine when fats are ingested; this also inhibits the secretion of hydrochloric acid on injection. Urogastrone is said to be diminished in the urine of patients with peptic ulcer, and there are good prospects that it may be developed in a suitable form for the treatment of that disease. These effects must be differentiated from those of pregnancy urine extracts, which are likewise said to accelerate the healing of peptic ulcers, though they do not diminish the acidity. Developments may also be expected from current research on carbonic anhydrase. This ferment is present in high concentration in the gastric mucosa and apparently plays a part in the formation of hydrochloric acid. Thiocyanate inhibits equally the ability of carbonic anhydrase to catalyse the hydration and dehydration of carbon dioxide and the secretion of hydrochloric acid by the gastric mucosa of dogs. It would appear that the toxic side-effects of thiocyanate are too great to permit its use for this purpose in man, and it would be well worth while to institute a search for a less toxic chemical with the same or greater power to inhibit the gastric secretion, in the same way as thiourea and thiouracil were discovered from the systematic study of inhibitors of thyroid secretion.

Unconscious after Head Injury

Q.—*A man aged about 70 is found deeply unconscious in his bed one morning. He had had a fall downstairs two weeks before, but had gone about as usual, though he complained of headache. Assuming that his condition might be due to one of the following causes, would you discuss the differential diagnosis and means of investigation: (1) extradural haemorrhage; (2) subdural haemorrhage; (3) subarachnoid haemorrhage; (4) cerebral haemorrhage; (5) cerebral thrombosis. I am assuming that an accident might determine the onset of a cerebral thrombosis. Do you agree?*

A.—This differential diagnosis is very satisfactory. By far the most likely condition to have caused the headache and delayed unconsciousness in a man of 70 is a subdural haematoma. This normally gives headaches and a slowly increasing impairment of consciousness without correspondingly severe local signs. The

history is long for an extradural haemorrhage, but does not exclude it. A fracture through the temporal bone in this condition might suggest damage to the middle meningeal artery. Subarachnoid bleeding occurs in nearly every head injury and is unimportant unless massive—a simple lumbar puncture could have excluded this. Intracerebral haemorrhage would almost certainly have been associated with long tract signs, and its differential diagnosis from cerebral thrombosis may be very difficult. The headaches for a fortnight suggest that these were not the cause, and trauma does not usually give rise to cerebral thrombosis. In investigating this case I should have done a detailed neurological examination, an *x*-ray of the skull to look for fractures, and a lumbar puncture, reading pressures. If there was xanthochromia with a rise in protein I should have recommended bilateral exploratory burr holes as soon as consciousness had become impaired. Burr holes should never be omitted in cases of this sort.

Family History of Encephalitis Lethargica

Q.—*A girl, now aged 23, tells me that at the age of 6 she contracted encephalitis lethargica and was admitted to hospital. After 4 years she was discharged cured—one of the lucky 20%. The amazing thing about her case is that she gives a family history of both father and grandfather who died with encephalitis lethargica. She asks if it is safe for herself, and more particularly for the child, for her to have a baby. I have never heard of encephalitis lethargica being hereditary and can find no reference to this in textbooks. The girl has been examined by myself and at a hospital, and physically she is perfect. She has an attitude and way of speaking which is a trifle "lethargic," but passably normal.*

A.—Encephalitis lethargica is an infection and therefore cannot be inherited. It is caused by a virus, which can remain alive in the brain for many years, and some viruses can be transmitted from parent to child in the ovum or spermatozoon. The history of this patient suggests that the virus of encephalitis lethargica may be transmitted in this way, but, if so, it must be a very rare occurrence. I do not remember any example of a parent and child having had encephalitis lethargica, and I am sure I have never heard of one in which three successive generations were affected. I think that if this patient has a child the risk of it developing encephalitis lethargica is too remote to be considered seriously.

Treatment of Vulval Warts

Q.—*Can you help me to treat a crop of gonococcal warts on the labia majora of a young woman who has just been confined? She acquired this disease during pregnancy (from her husband), was treated and reported cured. The child is free from disease and the mother has no signs or symptoms other than this crop of irritating warts. I do not want to send this girl back to a V.D. clinic unless it is necessary.*

A.—Vulval warts tend to flourish during pregnancy; now that the confinement is over and there is no gonorrhoeal discharge they may begin to retrogress. The first thing to do is to allay irritation. Bathe the affected parts with weak antiseptic; then dry them and keep them dry with a dusting powder, such as zinc oxide, boric acid, and bismuth subgallate, equal parts. If this does not cause disappearance, various local methods may be tried: (1) Paint frequently with: liq. arsen., 1 part, vin. ipecac., 1 part, sp. vin. rect., 2 parts. (2) Touch the warts with either nitric acid or trichloracetic acid, or with a mixture of salicylic acid, 1 part, acetic acid, 8 parts; the neighbouring skin should be protected with vaseline and the labia majora kept apart with a piece of lint. (3) Destroy with the electrocautery. (4) Coagulate with the diathermy current. (5) Remove the warts by scraping with a curette or sharp spoon. A few applications of superficial *x* rays are often useful in preventing recurrence, which is common; these should be carried out only by an expert.

Much depends on how big a crop of warts has to be dealt with. Mild measures will usually be effective if the warts are few and scattered; more drastic ones are indicated if there are large masses. Warm, moist conditions favour the growth of warts, and warts are infective. In carrying out treatment these facts should be borne in mind.

Myopic Schoolboy

Q.—*A schoolboy between 13 and 16 has myopia of mild or moderate degree. An oculist prescribes suitable lenses so that he can see at a distance. The boy is then told only to wear the glasses for near work or intense gazing at a distance, such as the pictures or seeing the blackboard. The usual result is that the boy keeps his glasses in his pocket and does not remember to wear them at all unless he really needs help for distant vision; he may then remember to use them. No boy wants to be seen in spectacles. The only value of the glasses, so far as I am aware, is to enable him to see at a distance. There is nothing curative about them. With them he can see birds, recognize his friends, watch the cricket, see the school clock across the quadrangle. Without them he misses all these things, whatever he may say to persuade one to think that he can see well. If he always wore them he would not feel self-conscious for long. Why, therefore, tell him that he only needs to wear them on occasions? Some specialists tell him to wear glasses for reading, when he knows for himself that he does not need them. Is this on the assumption that it is close work which goes with study at schools that is the cause of the myopia? I am entirely in the dark as to the rationale of the modern treatment of myopia. It seems unreasonable to assume the condition is due to study, entirely wrong to wear glasses for near work, and psychologically unsound to start off by minimizing the occasions for which spectacles are to be used. I should be grateful if I could be put right in this matter.*

A.—In myopia of a very mild degree it is better to be circumspect in prescribing glasses. The wearing of glasses by a scholar has a psychological effect dependent upon the make-up of the child. In cases of very slight myopia where the mental effort is likely to be marked it is better to await events. This, in practice, is found to be wise; for though glasses would benefit distant vision to some extent, the child can see the blackboard well enough without their aid if he is in the front of the class, and he can see to read slightly better than with glasses. In these circumstances it is more than likely that any glasses will be kept in the pocket. The parents should be warned that myopia tends to increase with the growth of the child and that glasses may be required later. Where the short-sight is sufficient to prevent clear and easy vision of the blackboard from any position in the class, glasses should be ordered and should be worn all day long. With the exception of football and swimming this rule should be rigidly adhered to, otherwise the glasses will not be put on when they should. Unsplinterable lenses used to be ordered for games, but at the present time there is some difficulty in obtaining the safety glass. Plastic lenses are very light in weight and meet the case, but are rather easily scratched. At one children's clinic there has been only one case of splintering with ordinary glass in about 13,000 spectacles.

Glasses in myopia cannot be curative—there is no recognized cure of myopia—but there is a great weight of opinion that they limit the usual increase. Two factors must be considered when a moderate myope reads without glasses. First, the head is held too close to the book. This necessitates over-convergence of the eyes and consequent undue pressure by the eye muscles on the globe of the eye, tending to accentuate myopic elongation. Secondly, it is said by some that a congestion of the eye is engendered which is deleterious. The habitual stooping may also affect the carriage of the child. The wearing of the proper correction entails the use of the ciliary muscle when reading, with a consequent improvement in the intra-ocular circulation. In other words, the eye is being used as intended by Nature. The myope reading without glasses exercises little or no focusing (hence the popularity of dispensing with glasses), and atrophy of the ciliary muscle of a corresponding degree results.

To sum up: very slight myopia—no glasses, from the practical and psychological points of view: other degrees of myopia—glasses for constant wear.

Intractable "Athlete's Foot"

Q.—*May I have suggestions for the treatment of an intractable case of "athlete's foot"? A patient contracted this complaint two years ago. He was first treated with the usual fungicidal ointments, to which later skin-healing ointments were added in order to get deep penetration, as the lesion seemed very deep-seated. X rays were later applied, with beneficial results for one month. After this, in spite of the application of new dye preparations, the lesion continued to spread. As a last resort I used carbolic to strip the skin deep, and reapplied dyes. I am now trying azochloramid, but so far results don't look very satisfactory. The condition now occupies all the sole of the foot except the heels, toes, and base of toes, and shows a tendency to spread up the medial surface of the foot.*

A.—Although "athlete's foot" usually means ringworm, it also has a popular application to a variety of symptoms which may or may not be parasitic. Dermatologists are well aware of the refractory nature of a proportion of the ringworm infections of the foot, and have attributed this to the difficulty of getting at and destroying the fungus in the thickened white skin between the toes or to reinfection from diseased toenails. This difficulty is reflected in the very numerous "specifics" which are put on the market from time to time.

Eczematoid ringworm of the foot was first recognized and described in France in 1892 by Djelaleddin-Moukhtar and was elaborated by Sabouraud and other workers long before its nature was appreciated elsewhere. It is thus essentially a European complaint, although more common in the United States. The qualifying term "eczematoid" is significant because it calls attention to the eczema moiety of the eruptive process, which is often aggravated by the strong fungicides, which convert a simple process into an extensive eczema. In view of this it may be well, in the circumstances related by the questioner, to discontinue all active treatment and use simple measures suitable for acute eczema, such as boric-zinc ointment and lead calamine lotion. When it becomes possible

a search for fungus in the skin between the toes or elsewhere should be made, as it is possible that the fungus has been eliminated by the previous treatment.

Epidermophytosis

Q.—*Is there any known cure for chronic and intractable trichophytosis of the hands and feet?*

A.—Presumably the question refers to epidermophytosis of the hands and feet. This can be very nearly impossible to cure. In my experience the most valuable remedy is dithranol as a 2% solution in benzene (*B.P.*), or in the form of an ointment from 2 to 4% in strength, preferably in an emulsifying base. Owing to its staining and irritating effects, dithranol has to be used with caution.

Paget's Disease Again

Q.—*Can anything be done for a case of Paget's disease of the bone in a man aged 46? He has the usual gross thickening and sclerosis of bone in skull, pelvis, femurs, lumbar and dorsal spine. He has been treated with ultra-violet light, suprarenal extract, and many other remedies, without benefit. His chief complaint is that he cannot stand upright for more than a few moments because of the pain which runs down his back and into his legs, the pain being a rather unusual constant feature in his case.*

A.—As stated in our previous answer about Paget's disease (Oct. 16, p. 501), in all such cases it is important not to allow the spectacular appearances in the radiographs to take attention away from other possible causes of symptoms. Spinal tumours and other lesions possibly causing referred pain to the legs must be satisfactorily eliminated. At the same time it should be remembered that a certain number of cases of Paget's disease undergo sarcomatous change. Radiotherapy, if nothing else is found, should be tried.

LETTERS, NOTES, ETC.

The Tobacco Habit

Sir HAROLD SCOTT (Braintree, Essex) writes: Referring to the question on page 502 of the issue of Oct. 16 concerning a cure of the tobacco habit, may I suggest a remedy which I have found efficacious, first with myself and later in other cases of those who have wished to stop the smoking habit? It is to rinse the mouth with a solution of 0.25% silver nitrate. I believe that I originally got the idea from the *British Medical Journal*, but it must have been at least thirty years ago.

Treatment of Sweating Feet

Surg. Capt. D. H. C. GIVEN writes: The following method of treating sweating feet, introduced by the factory chiropodist almost 12 months ago, has proved most successful. Many of the patients returned to report that it was the first remedy after years of suffering that had brought real relief and cure. Procedure is as follows. Apply a lotion of 3% salicylic acid in a spirit base to the affected parts t.d.s., allowing it to dry off before replacing the footwear. A small quantity of the following powder should be dusted daily into the socks: salicylic acid 3 parts, starch powder 10 parts, talcum 87 parts. Improvement is usually manifest in three to four days, when the application can gradually be reduced to suit the case.

Dr. ASTLEY V. CLARKE (Leicester) writes: During the last war we also had the problem of sweating feet and tried all sorts of remedies. We came to the conclusion that proper ventilation of the feet—that is, boots not too tightly fitting—together with daily washing of the soles with soap and either a nail brush or, better still, a pumice stone to rub the soap well in and remove sodden epidermis, was the simplest and was very effective. We found the men had never washed the sole of the foot with soap, as to do it is rather a gymnastic performance. In civil life, too, this treatment is all that is necessary in most cases. Forty years ago sweating feet among young women out-patients was very common, but this is almost unknown now that thin stockings and shoes give the proper ventilation. The same girls often had chlorosis, and removal of the stays they wore then has, I believe, been a potent factor in the disappearance of chlorosis.

Dr. ALBERT W. BAUER writes: Referring to the suggestion made by Capt. E. Colin Jones (Oct. 30, p. 558) on the treatment of sweating feet I take the liberty of calling attention to the treatment used in the old Imperial Austrian Army, which is still simpler, and proved very effective not only in combating sweating feet but also the spreading of furunculosis by contact and dressing to which soldiers (and civilians) often are subject through uncleanliness caused by the impossibility of changing stockings and underclothing, etc. The treatment consists of painting the soles and spaces between the toes and/or the area where furunculosis is present with a 10% aqueous solution of formalin for three days daily and then once or twice weekly. By this painting the skin is tanned and so hardened against spread of infection. The actual furuncle is, of course, treated as usual. Here, too, a little supervision is necessary to prevent the skin from getting too dry or too irritated. An aqueous solution of formalin contains about 40% of formaldehyde; to avoid error, the prescription must be made by using the chemical formula—e.g., 10% of H.CHO.

Recurrent Erysipelas

Dr. H. W. BARBER (London) writes: With regard to the case of recurrent erysipelas referred to in the "Any Questions?" column (Oct. 23, p. 533), I should suspect that the source of the recurring invasion of the lymphatics is one or more streptococcal fissures in the retro-auricular fold, or possibly at the entry of the meatus. If this is so, no treatment is likely to prevent the attacks unless the fissures are permanently healed. Recurrent lymphangitis (relapsing erysipelas) is one of the most important and serious complications of chronic streptococcal infection of the skin, because the repeated invasion of the lymphatics may eventually cause their blockage, giving rise to persistent elephantiasis and permanent disfigurement. In these cases the attacks of lymphangitis are seldom accompanied by much rise in temperature, and the general disturbance is slight. This is as one would expect, since the patient is a chronic streptococcal carrier, and the strain of organism is not virulent. The fissures occur in the natural folds of the skin as a complication of chronic streptococcal intertrigo, or at muco-cutaneous junctions. For brevity's sake the cases may be classified according to the site involved in tabular form:

Site of the Lymphatics	Portal of Entry to the Lymphatics	Comments
1. Nose, malar regions, and lower eyelids	Fissures at the angles of the nostrils, often associated with impetiginous anterior rhinitis, chronic nasal catarrh, and sometimes with sinusitis	If elephantiasis supervenes the condition known as "erysipelas perstans faciei" (Kaposi) or "solid oedema" (Hutchinson) results
2. Ears, adjacent parts of the face and scalp	Fissures in the retro-auricular space with chronic streptococcal intertrigo, which may in turn be secondary to a seborrhoeic dermatitis spreading from the scalp; or chronic meatitis, with fissures at the entry to the meatus, also often primarily a seborrhoeic infection	Persistent elephantiasis of the pinnae may be the sequel
3. Lips	Fissures in the vermilion borders of the lips with chronic cheilitis, or at the labial commissures	Persistent lymphatic oedema of one or both lips is relatively frequent, and is extremely difficult to influence by treatment
4. Scrotum and perineum	Chronic streptococcal intertrigo of the internatal cleft with radiating fissures in the anal folds, over the coccyx, and in the median raphe of the scrotum	In these cases large numbers of pathogenic streptococci may be cultivated from the stools. Elephantiasis of the scrotum is not uncommon
5. Dorsum of the foot, ankle, and leg	Fissures between the toes, or a chronic paronychia	*The streptococcal fissures are almost always a complication of interdigital epidermophytosis*, treatment of which is essential. The attacks of lymphangitis in this situation may be accompanied by a rigor, and considerable pyrexia and malaise. Permanent elephantiasis of one or both legs may gradually become established. This is the most serious complication of epidermophytosis of the feet

These are the commonest sites at which relapsing lymphangitis occurs, but not the only ones. I have, for example, seen the chest wall involved in a woman with submammary intertrigo. The non-recognition of the nature and origin of this form of erysipelas, which is a clinical entity in itself, has led to many persons being unnecessarily disfigured and even partially incapacitated. Its treatment is a chapter in itself.

Parodontal Disease

Dr. BRIAN BOYD-COOPER (the Royal Dental Hospital of London) writes: In the *Journal* of Oct. 23 (p. 534) I was much interested to read the answer given by your correspondent under the heading "Any Questions?" dealing with the query on the treatment of parodontal disease. I should like to congratulate him on the admirably succinct and sound advice he has given. There is, however, a startling omission—namely, there is no mention of securing the collaboration of the dental surgeon in such a case. Your correspondent wisely states that "local treatment is of more value than general." Surely this is within the province of the dental practitioner, to whom such procedures as are suggested more naturally belong?

⁂ We agree.—ED., *B.M.J.*